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CONTENTS

GENERAL INTRODUCTION

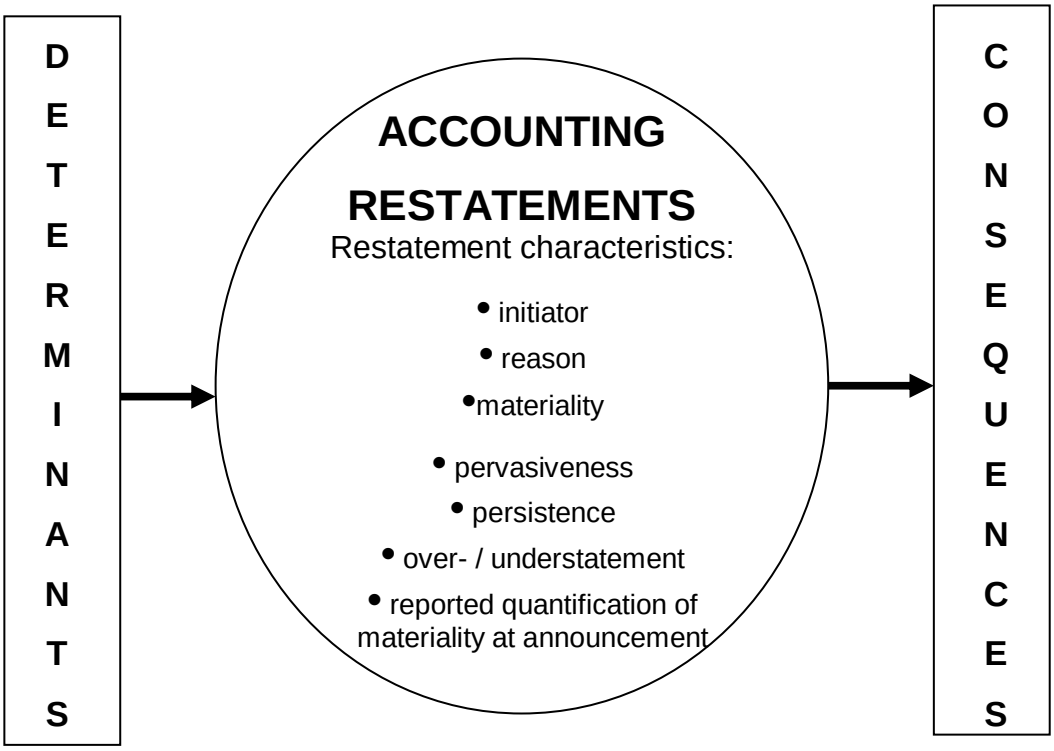
Issuing a financial restatement is a reaction to a discovered accounting irregularity in previously filed financial statements. The number of financial restatements has increased a lot (GAO report (2002), Huron Consulting Group (2005)) in recent years. Also the SEC determines the faded quality of the financial statements. Levitt (1998), former chairman of the SEC, dislikes the lack of transparency, timeliness and reliability of the financial statements. So it is not surprisingly that Dechow et al. (1996) found no less than 436 SEC's AAERs issued between 1982 and 1992 and that Callen, Livnat, and Segal (2002) show that SEC involvement in restatements, especially for the revenue error categories, increased dramatically in the late 90's. In this latter period a multitude of accounting scandals in America and Europe, such as Worldcom, Tyco, Enron, and Parmalat, turned up. These scandals have interfered with public trust and many actions are undertaken by institutions to restore the confidence in the financial performance of companies (e.g., Sarbanes-Oxley Act (SOX) (2002)).

The financial statements of a company give information about the performance of the firm in the market. The accounting numbers must be of high quality to provide an honest report and fair view to all the stakeholders. The information that the financial statements provide must be reliable for the decision making process of all the interested parties of the accounting numbers. Further, an error can occur in the financial statements of a firm due to many reasons, such as problems related to revenue recognition, cost accounting, merger & acquisition transactions, or related party transactions. Restatements can also be distinguished by their magnitude, such as materiality, pervasiveness and persistence. Materiality indicates the difference between the originally reported net income and the restated net income. Pervasiveness of the restatement indicates how many accounting groups must be restated, while persistence indicates the number of periods that must be restated. Financial statements that are found to contain material misstatements due to an error or an accounting irregularity must be restated. Another restatement characteristic involves the type of the restatement: restatements can be divided into two categories, overstatements and understatements. Overstatements (understatements) occur when the originally reported net income is larger than (smaller than or equal to) the restated net income. The materiality of an overstatement (understatement) is positive (negative).[1] Other restating characteristics involve the exact quantification of the materiality of the restatement which can be reported at the announcement, and the prompter of the restatement. The restatement can either be initiated by the company itself, the company's auditor or the regulatory institutions.

[1] The materiality indicates the size of the restatement.

The general framework of this dissertation is presented in Figure 0.1. On the left hand side it shows that many determinants prescribe the likelihood of an accounting restatement. On the right hand side it shows that the announcement of an accounting restatement can have many consequences for the restating firm itself, but also for other parties. The determinants and the consequences depend on the characteristics of the accounting restatement.

Figure 0.1: General Framework



First, the likelihood of an accounting restatement depends on a number of determinants. Many studies investigate the relation between different characteristics of firms and the probability of a restatement. Lower earnings to price, lower book to market, and higher total accruals increase the probability of a restatement (e.g., Richardson et al. (2002), Desai et al. (2006), Dechow et al. (1995), Dechow et al. (1996)). Further, Kinney and McDaniel (1989), DeFond and Jiambalvo (1991), Raghunandan et al. (2003), Myers et al. (2003), Desai et al. (2006), Callen et al. (2003), and Lazer et al. (2004) show that restatement firms are less profitable, are younger, and have higher leverage than their control counterparties. Beneish (1999), on the other hand, investigates the comparison between GAAP violators and their size-matched firms. He indicates that the samples cannot be distinguished on the following dimensions: size, liquidity, leverage, profitability, and cash flows.

The literature shows some other mixed results. Agrawal and Chadha (2003) indicate that restating firms and their industry-size-matched control firms appear to have similar ownership structures. In contrast, Beasley (1996) suggests that as the level of ownership of the firm's common stock held by outside directors increases the likelihood of financial statement fraud decreases.

Audit related firm characteristics can also influence the probability of a restatement. DeFond and Jiambalvo (1991), Dechow et al. (1996), and Kinney and McDaniel (1989) find no relation between a Big 6/Big 8 auditor and the probability of a restatement and a positive relation between a qualified audit opinion and the probability of a restatement. Mixed results are reported concerning the relation between audit tenure and the probability that a company will restate its earnings. Myers et al. (2003) finds no relation, while Stanley and DeZoort (2007) and Lazer et al. (2004) indicate a negative relation. A last audit related firm characteristic is the audit and non-audit fees. Raghunandan et al. (2003) find no empirical evidence of a possible relation between the fees paid to the auditors and restatements. In contrast, Kinney et al. (2004) suggests that there is a statistically significant positive relation between unspecified non-audit services fees and restatements.

There are also some studies done that investigate the governance structure of restatement firms. Dechow et al. (1996) and Agrawal and Chadha (2003) find that restating firms are more likely to have a CEO who simultaneously serves as Chairman of the Board, and who belongs to the founding family. Desai et al. (2006) found no statistically significant difference of the average age of the CEO, the average tenure and the extant of entrenchment of top management between restatement firms and their matched counterparties. Beasley (1996) suggests that board composition, rather than audit committee presence or composition, plays a greater role in reducing the likelihood of financial statement fraud. Wright (1996) and Agrawal and Chadha (2003) report a negative correlation between the financial reporting quality and the presence of insiders and so-called "grey" directors on the Board or the audit committee.

Since the sample of restatements can be distinguished according to the initiator of the restatement, the reason of the restatement, the size of the restatement, the number of items restated, the number of periods restated, whether a restatement is an over- or understatement and the reported quantification of the materiality of the restatement at the announcement, the determinants or causes for a restatement could differ depending on the characteristics of the restatements. Kedia (2003), for example, makes a distinction between firms who file an over- or understatement. The results show that firms with an understatement are older, have less debt, and exercise more options in the five years prior to the announcement of the restatement than their size and industry matched control group, and that firms with an overstatements have a higher growth and are more financially constrained than their size and industry matched control group.

Second, announcing an accounting restatement can have a number of consequences for the restating firm itself, but also for other parties. Anderson and Yohn (2002), Palmrose, Richardson, and Scholz (2004), Hirschey, Palmrose, and Scholz (2003), Dowdell and Press (2004), Kedia (2003), Srinivasan (2005), van Praag and Rees (2002), Desai et al. (2006), Hribar and Jenkins (2003), Dechow et al. (1996) and Kinney and McDaniel (1989) investigate the size as well as the direction of the cumulative abnormal stock price returns after a restatement. The results show significantly negative cumulative abnormal returns surrounding the announcement of the accounting problem.

When investigating the impact of announcing a restatement on the proportionate bid-ask spread, Palmrose et al. (2004) find no significant relation. In contrast, Dechow et al. (1996) finds a significant increase in the bid-ask spread after the announcement of the alleged earnings manipulation. Another market reaction is found by Hribar and Jenkins (2003). The study finds that accounting restatements cause an increase in the estimated cost of capital, as well as a reduction in the expectation of future cash flows.

Announcing a restatement can also influence the earnings quality of the restating firm itself. Dechow et al. (1996) finds a gradual increase of accruals as the alleged year of earnings manipulation approaches, followed by a sharp decline. Moore and Pfeiffer (2004) find no evidence that restating firms have less aggressive financial reporting, as measured by total accruals, in the periods following a restatement announcement. They not only consider the change in financial reporting as a consequence of a restatement, but they compare the characteristics of the financial reporting before and after the restatements. Another consequence for a restating firm is investigated by Graham et al. (2006). They find that bank loans initiated after the restatement announcement have significantly higher spreads, shorter maturities, higher likelihood of being secured, and more covenant restrictions, compared with loans initiated before the restatement announcement.

When splitting up the restatements according to their characteristics, Hribar and Jenkins (2003), and Agrawal and Chadha (2003) show that the downward revision of forecasts of analysts is larger for restatements that affect core earnings than for restatements that do not. Anderson and Yohn (2002), Callen, Livnat, and Segal (2002), Desai et al. (2003), Wu (2002) and Moriarty and Livingston (2001) find that restatements, involving revenue items, have the greatest negative abnormal stock pricr return. Wilson (2006) reports that the loss of information content is greater for firms with a restatement due to revenue recognition problems than it is for firms with other types of restatements. Moreover, Hirschey, Palmrose, and Scholz (2003) document that abnormal returns during the post-announcement period are closely tied to the specific type of restatement announcement. Kinney and McDaniel (1989) and Palmrose et al. (2004) find that a larger amount of

correction is associated with a significantly more negative return of stock prices for restatements correcting overstatements, while for restatements correcting understatements they find no significant relation between the amount of correction and the stock market return.

Further, Palmrose et al. (2004) conclude that the market reaction to restatements depends on the size and the pervasiveness of the accounting misstatement and the initiating party. Consistent with these results, Agrawal and Chadha (2003), and Hribar and Jenkins (2003), show that restatements involving large changes in earnings experience larger negative abnormal returns than smaller restatements, and that both company initiated and auditor initiated restatements are associated with significantly more negative abnormal returns, relative to SEC initiated restatements or restatements where the initiator is unidentified. Desai et al. (2006), on the other hand, find that the market reaction on auditor-prompted restatements is stronger than the market reaction on company-prompted restatements. Wu (2002) indicates that the punishments of the market are heavier when the adjustment to earnings is larger, when the company did not provide restated numbers on the day of the announcement, and when the restatement involves fraud. Consistent, Palmrose et al. (2004) distinguishes between quantification and non-quantification of the materiality in the announcement of the restatement. They find that the lack of quantification of the materiality at the restatement announcement leads to more negative excess returns on stock prices.

Manipulating earnings and issuing restated financial statements can also have consequences for and reactions of other parties besides the firm itself. First, Palmrose et al. (2004) shows that more pervasive restatements and restatements involving core accounts and issues increase the likelihood of litigation against the company and against the auditor. Second, Griffin (2003) finds that analysts revise their earnings forecasts not in anticipation of bad news but upon and following the public disclosure of such news. Hribar and Jenkins (2003), and Feroz et al. (2003) find comparable indications. Third, Desai et al. (2006) suggests that the board as well as the external labor market imposes penalties, such as management turnover, on the managers of firms that violate GAAP. They do not find a significant difference between the turnover rate of the firms that violate GAAP and size- and industry-matched control firms. Moreover, they find in their sample of GAAP violators that bankrupt firms exhibit a higher turnover than non-bankrupt firms. Consistent, Collins et al. (2005) finds a positive association between executive turnover and the severity of the accounting restatement, while Hennes et al. (2007) finds an extremely high top management turnover rate for intentional GAAP violations. Burks (2007) also examines top management turnover. He finds a significant association between CEO turnover and restatements before SOX, and a significant association between CFO turnover and restatements after SOX. Further, Burks (2007) and Collins et al. (2005) report reductions in bonus compensation after an accounting

restatement. Consistent with these results, Cheng and Farber (2006) find a significant decline in the proportion of CEOs' compensation in the form of options. Fourth, Srinivasan (2005) reports that directors, especially audit committee members, experience significant labor market penalties. Fifth, Gleason et al. (2004) declares that non-restating firms in the same industry experience economically meaningful share price declines.

To conclude, prior literature has investigated the determinants or causes, and the consequences of restated financial statements due to an accounting irregularity. The scope of this dissertation limits itself to some consequences of announcing an accounting restatement, seen the extended research concerning the characteristics of a restating firm. We focus on the bond market reaction, the reaction of the auditor and the reaction of corporate governance on the earnings quality. To investigate these consequences, we make use of the event study methodology (chapter 1) and the association study methodology (chapter 2 and chapter 3). In the event study methodology the dependent variable is measured over a short time interval around the announcement date, whereas in the association study methodology longer time intervals are used. When choosing the time interval, a trade-off must be made. In a long time window the number of events that cause any bias is large; this decreases the power of the regression model. In contrast, in a short time interval the number of events that cause bias is small, but the estimate of the dependent variable biases toward zero as the time interval around the event becomes smaller (Balsam et al. (2006)).

CHAPTER OUTLINE

In a first chapter, we examine the influence of announcing an accounting restatement on a firm's cost of public debt in the short run. Prior literature focuses on the stock market reaction after announcing an accounting restatement (e.g., Anderson and Yohn (2002), Hirschey et al. (2003), Srinivasan (2006)). We, on the other hand, will concentrate on the reaction of the bond market. We investigate the relation between the announcement of an accounting restatement and the cost of public debt by using the event study methodology. Studying this relation is important, seen the highly significant role of the bond market as external financing channel.[2] We argue that "bad" news restatements, such as large materiality overstatements and restatements with a non-exact quantification of the materiality, cause a more pronounced negative bond market response. Furthermore, we compare the reaction of the bond- and the stockholders to the announcement of a restatement. In this study we introduce an alternative measure of cost of debt for event studies. This measure is based on the daily yields to maturity of bonds and the daily yields to maturity of treasury bonds with corresponding maturity.

In a second chapter of this dissertation, we examine how audit fees paid to the incumbent auditor are affected by the announcement of an accounting restatement. Prior literature mainly focuses on audit related characteristics of restating firms (e.g., DeFond and Jiambalvo (1991), Kinney and McDaniel (1989)), whereas our research fits in the category of audit related consequences of announcing an accounting restatement. We take a closer look at this issue, because a restating firm has to be aware of an increase in the audit fees as a possible consequence of announcing a restatement, and thus whether it faces after the announcement of a restatement an additional penalty in the form of less money to spend to polish up their image (e.g., money given to charity). The investigation on the relation between restatements and audit fees is motivated by the fact that filing a restatement involves extra work and extra risk for the auditor. We investigate the relation between announcing an accounting restatement and the level of paid audit fees for a period of four years around the announcement of the restatement. Further, to investigate the relation between accounting restatements and audit fees more in depth, we distinguish between the accounting restatements according to the initiator and the reason of the restatement.

In a third and final chapter, we examine if strong corporate governance influences earnings management differently for firms that announced recently a restatement compared with non-restating firms over a period of seven years around the restatement announcement. Most prior

[2] There are three primary external financing channels concerning the issuance of securities: the issuance of bonds, common stocks, and preferred stocks. Besides the issuance of equity or debt instruments, there exist some other important sources of financing include bank loans and trade credit.

literature (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)) investigating market and accounting consequences in a long time window after the restatement announcement uses a sample of only restating firms. We, on the other hand, will use a matched pair design in this study.[3] Further, this research contributes to the literature of earnings management and the role of corporate governance (e.g., Carcello et al. (2006), Bowen et al. (2004), Becker et al. (1998), Menon and Williams (2004), Klein (2002)) by adding the restatement announcement characteristic. This research is relevant for the policy maker, investors, and the firm itself. The policy maker must know whether the creation of an artificial framework where then influence of strong corporate governance on performance is always good, is necessary. This study is also important to investors, with a look on some corporate governance variables, they can judge if the accrual quality is high or low, and even higher or lower for restating firms. Further, the firm itself benefits from this research. The firm gets an idea whether the announcement of an accounting restatement has a positive consequence, namely the efficacy of internal corporate governance on earnings management increases. We will focus on the influence of strong internal corporate governance on an accounting based measure of earnings quality and check whether there is a difference in behavior between restating and non-restating firms.

[3] We use a matched pair design to get a second sample to test for robustness of the results.

Chapter 1 The Impact of Accounting Restatements on a Firm's Cost of Public Debt

ABSTRACT

This paper examines the impact of announcing an accounting restatement on a firm's cost of public debt. While prior literature (e.g., Anderson and Yohn (2002), Palmrose et al. (2004), Hirschey et al. (2003)) mainly pays attention to the stock market reaction after the announcement of a restatement, the bond market's response is here studied. Based on a sample of 143 bonds of U.S. restating firms, results indicate an increase in the cost of public debt around the restatement announcement of on average 6.2%. Furthermore, we report that the bond market penalizes restating firms additionally when the exact quantification of the materiality of the restatement is not stated at the announcement and the materiality of the correction is larger. This latter is only valid for overrestating firms. In contrast to the reaction of the bondholders, the reaction of the equity holders is indifferently whether the reported quantification of the materiality at the announcement is exact or not; and the stockholders' reaction is more negative when the materiality of the restatement is larger.

1.1 INTRODUCTION

This study extends the growing literature (e.g., Kinney and McDaniel (1989), Richardson et al. (2002), Palmrose et al. (2004), Desai et al. (2006)) on restatements of financial statements of companies due to non-GAAP reporting.[4] In this paper we examine the influence of announcing an accounting restatement of previously filed financial statements on a firm's cost of public debt, while prior event study literature on restatements (e.g., Kinney and McDaniel (1989), Anderson and Yohn (2002), and Palmrose, Richardson, and Scholz (2004)) mainly pays attention to stock holders' reactions after the announcement of a restatement.

When announcing a restatement, firms will be concerned about the debt market reaction as the bond market is the most significant external financing channel (for example, proceeds from the issuance of bonds constitute 87.1% of the total three offerings, and the fraction of bonds financing continues to be above 80% in the 1990-1993 period (Anderson et al., 1994)).[5] When a company announces a restatement, the financial information loses its reliability, and the integrity and competence of management are called into question. Investors experience an increase in risk and uncertainty, so it is likely that investors, such as bondholders, will react negatively to a restatement.[6]

The contribution to the literature is twofold. First, we report the reaction of the bond market to the announcement of a restatement. Furthermore, we investigate whether there is a difference in the reaction of the debt holders and the equity holders. We compare whether the bond and stock market react differently to the absence of an exact quantification at the announcement date and the magnitude of an accounting restatement.[7] Second, we introduce an innovative way of measuring the cost of public debt for event studies. To measure the reaction of bondholders around the announcement of a restatement, we use daily bond market data, while prior event studies (e.g.,

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[4] A restatement is made when the auditor, the SEC or the company itself discovers that at least one of the account groups is not reported according to the GAAP regulation. The discovered fault can for example be related to acquisitions & mergers issues, cost or expense issues, or revenue recognition issues. The announcement of such a fault causes risk and uncertainty for the investors regarding the reliability of current and future financial statements and regarding the current and future profitability of the firm.

[5] There are three primary external financing channels concerning the issuance of securities: the issuance of bonds, common stocks, and preferred stocks. Besides the issuance of equity or debt instruments, there exist some other important sources of financing include bank loans and trade credit.

[6] The primary objective of financial reporting is to "provide information that is useful to present and potential investors and creditors and other users in making rational investment, credit and similar decisions" (Statement of Financial Accounting Concepts No. 1, par. 34).

[7] The magnitude of a restatement can be: materiality, persistence, pervasiveness.
The materiality of a restatement indicates how much the originally reported net income differs from the restated net income. When the announcement and the filing of the restatement do not happen at the same day, i.e. the exact quantification of the materiality is not stated at the announcement of the restatement; we calculate the materiality of the restatement using the restated data known at the filing.
The persistence of a restatement indicates ho many quarters are restated.

Chatterjee et al. (2004), Warga and Welch (1993), Penas and Unal (2004)) measure the reaction of bondholders using monthly returns of bond prices, which is a more rough measure and can cause more bias in the results. The daily bond market data used are the yields to maturity of bonds, as bond prices and yields to maturity move in opposite directions (Fabozzi (2004)).[8,9]

Based on a sample of 143 bonds of U.S. firms that announced a restatement in 2000, 2001 or 2002, we find an increase in the cost of public debt around the announcement of the restatement of on average 6.2%. The empirical evidence shows that bondholders react more negatively to overstatements with larger materiality. Results indicate that bondholders penalize restating firms additionally, when the exact quantification of the materiality is not stated at the announcement of a restatement. In contrast to debt holders, equity holders react indifferently whether the reported quantification of the materiality at the announcement is exact or not; and the stockholders' reaction is more negative when the materiality of the correction is larger. Comparable to the bondholders' reaction, we find a decrease in the abnormal return of the stock prices around the announcement of the restatement of on average 7.5%.

The remainder of this paper is organized as follows. In section 2 we give an overview of the existing literature and in section 3 we develop the hypotheses. In section 4 we specify the model. Next, we discuss the sample selection and the data collection. In section 6 the results of our analyses are discussed. Finally, in section 7 we summarize the main findings.

1.2 LITERATURE REVIEW

Research on restatements can be divided into two main areas. The first category of studies deals with the consequences of and reactions to restatements.[10] Prior literature investigating the stockholders' reaction to an accounting restatement shows mixed results. Studies (e.g., Anderson and Yohn (2002), Palmrose, Richardson, and Scholz (2004), Hirschey, Palmrose, and Scholz (2003), Dowdell and Press (2004), Kedia (2003), Srinivasan (2005), van Praag and Rees (2002), Desai et al. (2006), Hribar and Jenkins (2006), Dechow et al. (1996) and Kinney and McDaniel (1989)) which investigate the size as well as the direction of the cumulative abnormal returns of stock prices after a restatement find a significantly negative reaction of equity holders to the

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The pervasiveness of a restatement indicates how many account groups are restated.

[8] Relation between bond price and yield to maturity: calculation of the yield to maturity by means of the bond price is a 'net present value' calculation. Equating the amount of money paid for the bond, the bond price, to the discounted income and capital payments, the yield to maturity being the discount rate which makes the two equivalent.

[9] In prior association studies (e.g., Mansi et al. (2004), Chen et al. (2003), Anderson et al. (2004), Nikolaev and van Lent (2005)) the yield to maturity of bonds is used as a measure of cost of public debt.

announcement of an accounting problem. Other literature (e.g., Palmrose et al. (2004)), using the proportionate bid-ask spread to measure the stock market reaction, shows no significant change in the spread surrounding the announcement date of the restatement. In contrast, Dechow et al. (1996) finds a significant increase in the bid-ask spread after the announcement of the alleged earnings manipulation. Further, Hribar and Jenkins (2006) find that accounting restatements cause an increase in the estimated cost of capital, as well as a reduction in the expectation of future cash flows in a short time window of five days around the announcement of a restatement.

Another stream in the literature investigates whether the reason, the type, the materiality and the pervasiness of the restatement matters in explaining the stock market reaction.[11] Hirschey, Palmrose, and Scholz (2003) document that abnormal returns of stock prices during the post-announcement period are more negative when the restatements affects core earnings.[12] Furthermore, Anderson and Yohn (2002), Callen, Livnat, and Segal (2002), Desai et al. (2006), Wu (2002) and Moriarty and Livingston (2001) suggest that there are more pronounced negative abnormal returns around the announcement of a restatement related to revenue recognition. Studies (e.g., Kinney and McDaniel (1989) and Palmrose et al. (2004)), investigating the type of the restatement, find that the stock market reaction is more negative to overstatements with larger materiality, while there is no significant relation between the amount of correction and the stock market return for understatements. Further, Palmrose et al. (2004) reports that equity holders react more negatively to more pervasive accounting restatements.

Finally, prior literature (e.g., Palmrose et al. (2004)) investigates whether the initiating party of the accounting restatement also explains the reaction of stockholders.[13] They find that the market reaction to restatements is larger when the auditor or the company itself initiates the restatement.[14,15]

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[10] A second category of research concerning restatements deals with the determinants or characteristics of firms that file a restatement (e.g., Richardson, Tuna, and Wu (2002), and Kinney and McDaniel (1989)).

[11] The reason of a restatement can for example be: acquisitions & mergers; cost or expense; in-process R&D; reclassification; related-party transactions; restructuring assets or inventory; revenue recognition; securities related.
The type of a restatement can be: overstatements (originally reported net income is larger than restated net income) and understatements (originally reported net income is smaller than or equal to restated net income).

[12] Hribar and Jenkins (2006), and Agrawal and Chadha (2005) show that the downward revision of forecasts of analysts is larger for restatements that affect core earnings than for restatements that do not.

[13] The initiating party of a restatement can be: auditor, SEC, company itself.

[14] Hribar and Jenkins (2006) show that the increase in the estimated cost of capital, as well as a reduction in the expectation of future cash flows is larger when the auditor or the company itself initiates the restatement.

[15] Besides the stock market reaction after a restatement in a short time window, prior literature also investigates the market and accounting consequences in a long time window after the restatement. Dechow et al. (1996) finds a gradual increase of accruals as the alleged year of earnings manipulation approaches, followed by a sharp decline. Moore and Pfeiffer (2004) find no evidence that restating firms have less aggressive financial reporting, as measured by total accruals, in the periods following a restatement. Another consequence for a restating firm is investigated by Graham et al. (2006). They find that bank loans initiated after the restatement have significantly higher spreads, shorter maturities,

1.3 HYPOTHESES DEVELOPMENT

Prior literature, investigating the market reaction after announcing an accounting restatement, focuses on the reaction of equity holders. These studies (e.g., Kinney and McDaniel (1989), Anderson and Yohn (2002), and Palmrose, Richardson, and Scholz (2004)) find a significantly negative stock market reaction after the announcement of an accounting mistake related to previously filed financial statements. We, on the other hand, pay attention to the reaction of another important market party, namely the bondholders, on the announcement of an accounting restatement.

Prior literature (e.g., Yu (2005), Botosan and Plumlee (2002), Ferris et al. (2001)) finds that debt and equity holders react both negatively to bad-quality announcements, such as low disclosure quality and the announcement of filing of chapter 11. Further, Datta and Dhillon (1993) find a symmetric bond and stock price response to unexpected earnings announcements. When announcing a restatement it is possible that certain accounting characteristics, such as the reported earnings, will be different from the non-restated accounting characteristics. Thus, restating previously reported earnings are somewhat similar to announcing unexpected earnings. The increase in risk and uncertainty around the announcement of a restatement ensures that investors, both equity holders and bondholders, react negatively to the announcement of a restatement. This leads to the first hypothesis:

H1: *For restating firms, the reaction of the bondholders is negative around the announcement of a restatement, ceteris paribus.*

Announcing a restatement, means committing that the company made an accounting mistake in the past. The announcement of such a fault causes risk and uncertainty for the investors regarding the reliability of current and future financial statements and regarding the current and future profitability of the firm. Due to the announced mistake, the company must restore the lost confidence. Although announcing a restatement means a decrease in the company's reliability, this bad news announcement can be strengthened or be neutralized depending on the sign of the materiality of the announced restatement.

The difference in accounting characteristic net income between the originally reported item and the restated item, i.e. the materiality of the announced restatement, can be positive or can be negative. We can make a distinction between two different types of restatements, overstatements

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higher likelihood of being secured, and more covenant restrictions, compared with loans initiated before the restatement.

and understatements.[16] Most of the time, restatements of previously filed financial statements have a positive materiality, i.e., are a correction of an overstatement. Thus, the bad news, related to the announcement of an accounting restatement, is strengthened by the fact that a positive materiality also means bad news. The materiality of a restatement can also be negative and such a restatement may be perceived as relatively better than one with positive materiality. The bad news, related to the announcement of an accounting restatement, is neutralized by the fact that a negative materiality means good news. We expect that the bondholders' reaction will differ whether the announced restatement is an only-bad-news report or whether the announced restatement involves a relatively better report than one with only bad news.

Further, the non-exact quantification of the materiality of the restatement reported at the announcement date strengthens the bad news associated with the announcement of an accounting restatement. A restating firm can choose to announce a restatement and to file restated financial statements on the same day; the exact impact of the restatement on net income is publicly known at the announcement date. The restating firm can also choose to mention an approximate quantification of the restatement at the announcement; the exact effect is not known until the filing of the restated financial statements.[17] We expect that a non-exact announced quantification is related to bad news, consistent with Skinner (1994), who mentions that bad news disclosures tend to be non-exact statements about the current earnings, and Hutton et al. (2003), who declares that good news earnings forecasts are more likely to be associated with verifiable income statements.

In an only-bad-news environment, such as the announcement of a restatement with positive materiality, Kinney and McDaniel (1989) and Palmrose et al. (2004) find that a larger amount of correction is associated with a significantly more negative adjusted return of stock prices, In contrast, for restatements with negative materiality they find no significant relation between the amount of correction and the adjusted stock market return. The news about the negative materiality neutralized the bad news associated with the announcement of an accounting restatement.

When the restatement involves a non-provision of restated numbers on the day of the announcement of a restatement with positive materiality and Palmrose et al. (2004) and Wu (2002) indicate that the punishments of the stock market are heavier when the company did not provide restated numbers on the day of the announcement.[18] They find no difference between over- and

[16] Negative revisions of net income = overstatement: originally reported net income is larger than restated income.
[17] The filing of the restatement happens for our sample on average three months after the announcement.
[18] Palmrose et al. (2004) distinguishes between quantification and non-quantification of the materiality at the announcement of the restatement. As a caveat to their analysis, they indicate that there exist large differences between the observations in their quantification sample; final income-effect amounts as well as estimated income-effect amounts that may later be revised are included in their quantification sample. In our sample we make a distinction between the exact and the non-exact quantification of the materiality at the restatement announcement. As a caveat to our analysis,

understatements when there is no provision of restated numbers on the day of the announcement. A restatement with non-exact quantification of the materiality reported at the announcement means "double" bad news. A negative materiality does not neutralize this "double" bad news.

Since Zaima and McCarthy (1988) indicates a symmetric reaction of bond- and stockholders around bad news announcements, we expect that, consistent with Kinney and McDaniel (1989), Palmrose et al. (2004), and Wu (2002), overstatements with a larger materiality and restatements with non-exact announced quantifications of the materiality of the restatement are associated with more uncertainty, and thus cause a more negative bond market response, whereas there is no significant relation between the bondholders' reaction and the size of the correction for understatements. This leads to the second and the third hypothesis:

H2a: *For corrections of overstatements, the reaction of bondholders is more pronounced negative around the announcement of a restatement with a larger materiality, ceteris paribus.*

H2b: *For corrections of understatements, the reaction of bondholders is not significantly more negative or positive around the announcement of a restatement with a larger materiality, ceteris paribus.*

H3: *For restating firms, a non-exact quantification of the materiality of the restatement reported at the announcement causes a more pronounced negative bond market response around the announcement of a restatement, ceteris paribus.*

1.4 MODEL SPECIFICATION AND VARIABLE MEASUREMENT

To test the above hypotheses, in which the consequences of a restatement announcement on the debt market are investigated, the cost of debt has to be accurately measured.

We use daily data to measure the reaction of bondholders around the announcement of a restatement. The yield to maturity is the discount rate which makes the amount of money paid for the bond, the bond price, and the discounted income and capital payments equivalent; the bond price and the yield to maturity are perfectly inversely correlated (Fabozzi (2004)). The measure of

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we indicate that the non-exact quantification of the materiality sample consists of a large variety of observations; observations with an approximate quantification of the materiality, as well as observations with a qualitative indication of the materiality of the restatement are included in our sample.

cost of public debt is then based on the difference between the daily bondholders' reaction and the daily reaction on treasury bonds with corresponding maturity.[19,20] Thus, we adjust the bondholders' reaction by using the bondholders' reaction on treasury bonds with corresponding maturity. We use this adjusted returns methodology described in Masulis (1980) and adapted for bonds in Handjinicolaou and Kalay (1984), consistent with prior event studies (e.g., Hand et al. (1992), Chatterjee et al. (2004), Warga and Welch (1993), Penas and Unal (2004), Reeb et al. (2001), Anderson et al. (2003)). By adjusting the bondholders' reaction we control for unexpected market events. The adjusted bondholders' reaction (AC) is then calculated as follows:

$$AC = BRY - TRY$$

where BRY is the daily bondholders' reaction at time t and TRY is the daily reaction on treasury bond with corresponding maturity at time t. The daily adjusted bondholders' reactions are summed to calculate the cumulative adjusted bondholders' reaction (CAC) during a specific time period, i.e. the announcement effect on bond prices.

The date t is the day the restatement is publicly announced as stated in the GAO report (2002). Since there are often news releases within the firm of the potential restatement prior to this date, we use, consistent with Kinney and McDaniel (1989) and Anderson and Yohn (2002), a time period around the publicly announcement date of the restatement to calculate the CAC.[21] We opt to calculate the announcement effect on bond prices during a time period of seven days around the announcement of a restatement (CAC7).[22] The timetable in Figure 1.1 gives an overview of this time period during which the cost of public debt is measured.[23]

To conclude, we introduce an innovative way of measuring the cost of public debt for event studies. To measure the reaction of bondholders around the announcement of a restatement , we use

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[19] The definition of the corresponding maturity is based on the remaining maturity of the bond.

[20] Treasury bonds with a corresponding maturity are used in the analysis. Because the maturities for most of the bonds for which the spread is calculated will not exactly match the maturity of the available government benchmark bonds, linear interpolation is used to estimate the yield of a government benchmark with the same maturity as the bond which is analysed. For bonds with a maturity longer than the longest benchmark, the yield is compared to the longest benchmark and not extrapolated. Similarly, bonds with maturities shorter than the shortest benchmark are compared to the shortest available benchmark.

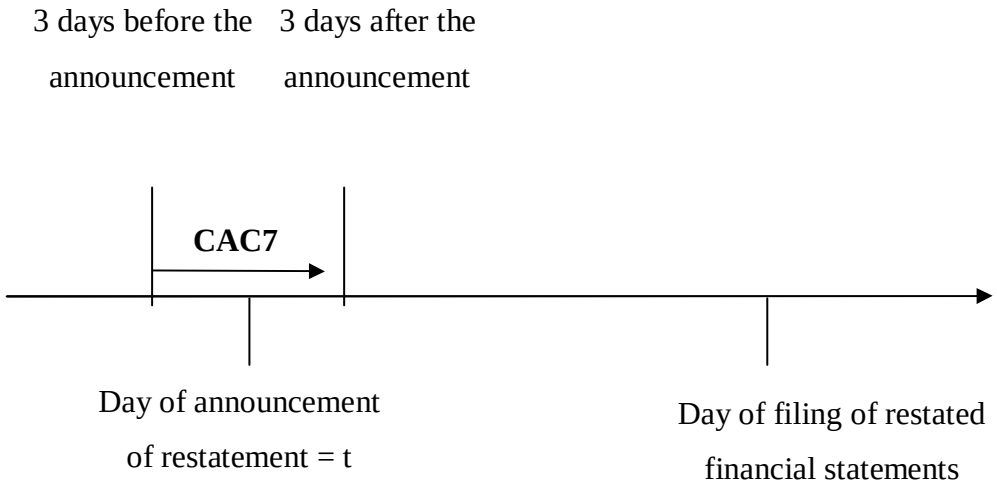
[21] There is often leakage of information just a couple of days before the official restatement announcement day, but sometimes the leakage of information can already find place several months before the official restatement announcement date.

[22] Anderson and Yohn (2002), and Palmrose et al. (2004) also use a short period of time around the announcement of a restatement to measure the reaction of the stockholders to this event. If we enlarge the period during which we measure the dependent variable, it is possible that other events influencing the reaction of the bondholders will occur during this extended period and this causes bias.

[23] In the sensitivity checks we changed the time period over which the adjusted bondholders' reaction is calculated. CAC7 is replaced by CAC5, the announcement effect on bond prices cumulated over a time period of two days before the announcement of the restatement till two days after the announcement of the restatement, and CAC3, the announcement effect on bond prices is calculated over a time period of three days, day of the announcement of the restatement + two days after the announcement of the restatement.

daily bond market data, while prior event studies (e.g., Chatterjee et al. (2004), Warga and Welch (1993), Penas and Unal (2004)) measure the reaction of bondholders using monthly returns of bond prices, which is a more rough measure and can cause more bias in the results. The daily bond market data used is the yield to maturity of bonds, as bond prices and yields to maturity are perfectly inversely correlated (Fabozzi (2004)).

Figure 1.1: Timetable



Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity);

To test the above hypotheses, in which the consequences of the announcement of a restatement are investigated, also proxies for the restatement characteristics have to be introduced.

The second hypothesis is tested by introducing several test variables. The first variable introduced is PERVASIV. This variable is measured consistent with Palmrose et al. (2004). PERVASIV represents the number of account groups involved in the restatement of a firm.[24,25] The maximum number of restatement reasons for our sample firms is three. The variable PERVASIV is

[24] There are nine different account groups that can be involved in the restatement of a firm in our sample: acquisitions & mergers, cost or expense, in-process R&D, reclassification, related-party transactions, restructuring assets or inventory, revenue recognition, securities related, and other.

reported on a continuous scale (we divided the number of restatement reasons for a sample firm by the maximum number of restatement reasons for our sample firms). We expect that a restatement involving many restatement reasons is viewed as more serious and causing more uncertainty, and thus leading to a larger cost of debt.

Other variables introduced to test the second hypothesis are PERSIST and POSNEG. PERSIST represents the sum of the quarters restated, where each quarter is 0.25. This measurement is similar to Palmrose et al. (2004). We expect that a more persistent restatement has a larger cost of public debt. POSNEG equals 1 if the restatement is a correction of an overstatement, 0 otherwise.[26] We expect that an overstatement has a larger cost of debt. The fourth variable introduced to test the second hypothesis is MATERIAL. MATERIAL represents the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets, measured at the year end before the announcement of the restatement; we calculate the materiality of the restatement using the restated data known at the filing. The association between the size of the restatement and the cost of public debt is expected to be positive for both under- and overstatements pooled in one sample, since we expect a positive relation for overstatements and no relation for understatements.

The variable introduced to test the third hypothesis is ANNFIL. ANNFIL equals 1 if the announcement of the restatement includes only an approximation of the quantification of the materiality of the restatement (when the announcement and the filing of the restatement do not happen at the same day, i.e. the exact quantification of the materiality is not stated at the announcement of the restatement), 0 otherwise. The variable ANNFIL could capture a measurement error (there is variability in the time period between announcement date and filing date), but also uncertainty (we have to wait for the exact quantification of the materiality of the restatement until the filing date of the restatement). We expect that bad news announcements, such as the non-exact reported quantification of the materiality of the restatement at the announcement date, leads to significantly larger cost of public debt.[27]

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[25] The number of account groups represents the number of reasons of a restatement.

[26] When there is no materiality, we classify the restatement as being an understatement. More than 85% of the understatements in our sample have a materiality equal to zero.

[27] In our multivariate analyses we did no separate tests for restating firms with ANNFIL=0 as there were too little observations which causes sever multicollinearity problems.

Table 1.1: Variable definitions, model specification and expected signs

	Definition	Expected sign
Dependent variables		
CAC7	Announcement effect on bond prices during a time period of 3 days before the announcement till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity)	
Independent variables		
Test variables		
PERVASIV (H2)	the number of account groups involved in the restatement on maximum of the number of account groups involved in the restatement	+
MATERIAL (H2)	The absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets, measured at year end before the announcemt of the restatement	+
PERSIST (H2)	the sum of the quarters restated, where each quarter is 0.25	+
ANNFIL (H3)	1 if the announcement of the restatement includes not an exact quantification of the materiality of the restatement, 0 otherwise	+
POSNEG (H2)	1 if the restatement is the correction of an overstatement, 0 otherwise	+
Control variables		
RATING	Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1	-
SIZE	natural logarithm of total assets, measured at year end before the announcement of the restatement	?
LEV	total liabilities on total assets, measured at year end before the announcement of the restatement	+
ROA	net income on total assets, measured at year end before the announcement of the restatement	-
industry fixed effects	fixed effect for every 1-digit SIC code	?
year fixed effects	DY1: 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2: 1 if the announcement of the restatement is made in 2001, 0 otherwise	?

Consistent with prior event study literature (e.g., Penas and Unal (2004), Maxwell and Stephens (2003)), we include control variables in our model. We include a RATING variable (the Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1) to adjust the risk that corresponds the bond, since the bondholders' reaction of treasury bonds only adjust for the maturity of the bond. The RATING indicates the risk that is attached to a firm's outstanding traded debt. We expect that a higher RATING, so less risk, will lead to a smaller bondholders' reaction. We include a SIZE variable (the natural logarithm of total assets, measured at year end before the

announcement of the restatement) in our model (e.g., Freeman (1987), Impson (1997), El-Gazzar (1998), Jones et al. (2004), Penas and Unal (2004), Maxwell and Rao (2003)); prior literature shows mixed results concerning the association between SIZE and the bondholders' reaction, so we have no expectations about the sign. A debt variable, LEV (total liabilities over total assets, measured at year end before the announcement of the restatement), and a performance variable, ROA (net income over total assets, measured at year end before the announcement of the restatement), are also entered in our model (e.g., Dhaliwal et al. (1991), Dhaliwal and Reynolds (1994), Billings (1999) Maxwell and Stephens (2003), Datta and Iskandar-Datta (1995)). LEV is also a measure of the risk for bondholders, so a larger leverage will cause a larger reaction of the bondholders. A large positive net income is associated with a well-functioning firm. A well-functioning firm bears less risk in the eyes of the investors. Concerning the ROA variable, we expect that a better performance, and thus a larger confidence of the investors, will cause a smaller reaction of the bondholders. As the cost of debt is time- and industry-varying, we include year and industry fixed effects.[28] We have no expectations concerning the industry and year fixed effects as prior literature shows mixed results concerning these variables. Table 1.1 gives an overview of the definitions and the expected signs of the variables. The extreme values in our sample are winsorized at the 95th and the 5th percentile to control for outliers in the analyses.

Given the defined hypotheses and the variables defined, the following regression model will be estimated:

$$CAC7 = \beta_0 + \beta_1 PERVASIV + \beta_2 MATERIAL + \beta_3 PERSIST + \beta_4 ANNFIL + \beta_5 POSNEG + \beta_6 POSNEG*MATERIAL + \beta_7 RATING + \beta_8 SIZE + \beta_9 LEV + \beta_{10} ROA + \beta_{11} industry\ dummies + \beta_{12} year\ dummies + \varepsilon$$

1.5 SAMPLE AND DATA

To test the hypotheses, we select a database of restating U.S. firms (see Table 1.2). This database is based on the GAO report (2002) which consists of 919 restatements in the U.S., reported between January 1, 1997, and June 30, 2002.[29] This report includes: company name, ticker symbol, market listing, date of announcement of restatement, shares outstanding, prompter of the

[28] We use industry fixed effects for every 1-digit SIC code. The use of few industry categories is consistent with Griffin (2003). The use of 2-digit SIC code industry fixed effects would cause a loss of too many degrees of freedom, since we have 25 different industries in our sample.

[29] This database was created by the U.S. General Accounting Office as required by the Sarbanes-Oxley Act. In GAO (2002) you can find details of the methodology used to create the database.

restatement, and coded reason of the restatement.[30] To obtain our sample we check how many firms of the GAO report (2002) are included in the Worldscope database and have bond data.

Of the 919 restating firms listed in the GAO report, only 89 are listed on the Worldscope database and have outstanding bonds surrounding the announcement date of the restatement; 412 restating firms are reported in Worldscope (equities) but don't issue bonds, 368 restating firms are not reported in Worldscope (equities), 50 restating firms are reported in Worldscope (equities) and issue bonds but don't have outstanding bonds surrounding the announcement date of the restatement. Of the 89 remaining restating companies we delete 40 observations due to missing values for the yield to maturity of the bonds. The final sample exists of 49 restatement firms: 1 firm in 2000, 31 firms in 2001 and 17 firms in 2002. These 49 restatement firms have 143 outstanding bonds.[31] This sample is comparable in size to the samples used in other bond papers. Sengupta (1998) uses 114 new bond issues between 1987 and 1991; Shi (2003) uses 132 new bonds issued by 81 firms between 1991 and 1994. Only 10 % of the restating firms in the GAO database have outstanding bonds surrounding the announcement date of the restatement, this is consistent with Reeb et al. (2001), looking for firms with outstanding bonds, who's final sample exists of only 10% of the original database.

Table 1.2: Sample selection

Sample selection
919 restating firms in GAO database **- 412** restating firms are reported in Worldscope but don't issue bonds **-368** restating firms are not reported in Worldscope **- 49** restating firms are reported in Worldscope, issue bonds, but don't have outstanding bonds surrounding the announcement date
= 89 restating firms that are listed on the Worldscope database and have outstanding bonds surrounding the announcement date of the restatement **- 40** restating firms have missing values for the dependent variable
= 49 restating firms have **143** outstanding bonds

We collect the necessary variables by consulting the Worldscope database. For firms with missing values for the test and control variables, we check the hardcopy versions of the financial statements, readily downloadable from the Securities and Exchange Commission (SEC) website.

[30] The coded reason can be: acquisitions & mergers; cost or expense; in-process R&D; reclassification; related-party transactions; restructuring assets or inventory; revenue recognition; securities related; and other.

1.6 RESULTS

1.6.1 Descriptive statistics and univariate analyses

The distribution of the sample firms by 2-digit SIC code is presented in Table 1.3. 25 different 2-digit SIC codes are represented in our sample, there seems to be no great concentration in any industry, which is similar to the sample distribution of Kinney and McDaniel (1989).

Table 1.3: Sample companies per 2-digit industry grouping

2-digit SIC code	Industry	Number of companies
13	oil and gas extraction	1
15	general building contractors	1
16	heavy construction, except building	1
20	food and kindred products	3
26	paper and allied products	1
28	chemicals and allied products	2
32	stone, clay, and glass products	1
33	primary metal industries	1
34	fabricated metal products	1
35	industrial machinery and equipment	6
36	electronic and other equipment	5
37	transportation equipment	1
38	instruments and related products	1
48	communication	2
49	electric, gas, and sanitary services	5
50	wholesale trade - durable goods	1
51	wholesale trade - nondurable goods	1
53	general merchandise stores	2
54	food stores	1
60	depository institutions	2
61	nondepository institutions	2
63	insurance carriers	1
67	holding and other investment offices	1
72	personal services	1
73	business services	5
		49

Descriptive statistics and univariate results of the dependent variables, test variables, and control variables are shown in Table 1.4 Panel A and Panel B.[32] Results show a mean increase in

[31] We only use bonds in our sample and not convertibles, as convertible bonds behave like equity financing especially in the U.S. (Dutordoir and Van de Gucht (2004)).
[32] Non-parametric Wilcoxon tests are used instead of parametric t-tests since the dependent variables are not normally distributed.

cost of debt of 6.2%.[33] For overstatements the mean increase in cost of debt is 8.1%, and the mean increase in cost of debt for understatements is 2.3%.

Table 1.4: Descriptive statistics and univariate results

Panel A: Descriptive statistics

Independent variables

		number of firms	Average CAC7	median CAC7			
ANNFIL (H3)	0	26	0.0599476	0.006172			
	1	117	0.0630547	0.007012			
	mean	median	minimum	1st quartile	3rd quartile	maximum	standard deviation
PERVASIV (H2)	0.37529138	0.333333	0.333333	0.333333	0.333333	1	0.13040885
MATERIAL (H2)	0.0432544	0.001045	-0.026613865	0	0.05117557	2.966484537	0.24841294
PERSIST (H2)	1.26748252	0.75	0.25	0.25	2.25	4	1.17846371
RATING	10.1853147	10	4.5	9	12	16	1.94345989
SIZE	23.1170812	23.2562	19.953	22.4041	24.0443	24.9656	1.12462345
LEV	0.40071469	0.3925	0.0466	0.2596	0.4959	1.3555	0.19338876
ROA	0.00062529	0.017274	-4.09782772	0.00523229	0.04837827	0.19567656	0.347618

Dependent variable

	mean	median	minimum	1st quartile	3rd quartile	maximum	standard deviation
CAC7	0.06213699	0.006803	-0.08673186	-0.00627348	0.04862009	1.36340362	0.19354211

We investigate the first hypothesis by checking if the median value of CAC7 is significantly positive. We report a small increase of the median value of CAC7 which is significant ($p<.0001$). This finding is consistent with our expectance of an increase in the cost of public debt around the announcement of lower financial reporting quality, and thus consistent with the first hypothesis. The median value of MATERIAL is positive (0.0433) which indicates that there are more overstatements than understatements in our sample. We see that the restatement on average persists a bit longer than five quarters. The correlation between PERVASIV and CAC7, and the correlation

[33] The mean increase in cost of debt of 6.2% is significantly different from zero using a t-test ($p=0.0002$).

between MATERIAL and CAC7 is significantly positive, while the correlation between PERSIST and CAC7 is not significant. We report a significant positive correlation between MATERIAL and CAC7 for overstatements, and no significant correlation between MATERIAL and CAC7 for understatements. The reported univariate results are consistent with hypothesis 2a and hypothesis 2b, that for corrections of overstatements, the reaction of bondholders is more pronounced negative around the announcement of a restatement with a larger materiality, and that for corrections of understatements, the reaction of bondholders is not significantly more negative or positive around the announcement of a restatement with a larger materiality.

Table 1.4 (*continued*)

Panel B: Univariate results

Independent variables

		median CAC7	Wilcoxon two-sample test†
ANNFIL (H3)	0	0.006172	0.0754*
	1	0.007012	

	correlation with CAC7
PERVASIV (H2)	0.20847**
MATERIAL (H2)	0.35762**
MATERIAL overstatements (H2)	0.52868**
MATERIAL understatements (H2)	0.11619
PERSIST (H2)	-0.00954

Dependent variable

	median	Wilcoxon one-sample test†
CAC7	0.006803	<.0001**

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)
† Non-parametric Wilcoxon tests are used instead of parametric t-tests since the dependent variables are not normally distributed

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement;

The median CAC7 is significant larger for restatements with a non-exact quantification at the announcement than for restatement with an exact quantification at the announcement (p=0.0754). These univariate results are consistent with the third hypothesis, that for restating firms, a non-exact quantification of the materiality of the restatement reported at the announcement causes a more pronounced negative bond market response around the announcement of a restatement.

1.6.2 Multivariate analyses

We use an OLS regression to test if the size of the reaction around the announcement of a restatement is more pronounced for certain characteristics of a restatement, such as the announced quantification of the materiality and the magnitude of the restatement.

In this case the residuals are not independent and identically distributed, but are correlated across observations within one firm. We correct for the observed correlation between the residuals by adjusting the standard errors for correlation within a cluster by using Rogers' corrected estimates for standard errors (Rogers (1993)). Without the correction, the OLS standard errors are biased downward and the magnitude of this bias is increasing in the magnitude of the firm effect.

We tested if there are any multicollinearity problems between the independent variables. We calculated the correlation matrix (see Appendix 1.A) and the VIF factors; no multicollinearity was detected. The results of the OLS regression, under- and overstatements pooled in one sample, with Rogers' corrected estimates for standard errors are reported in Table 1.5.

The p-value of the F-statistic of the model in Table 1.5 is <.0001. The model is highly significant. The adjusted R^2 of the model is 50.78%. The adjusted R^2 of the model without the test variables is 39.36%. When we take the under- and the overstatements in one sample, we notice that the cost of debt is larger for firms with a larger materiality and that the cost of debt increases when the quantification of the materiality at the announcement date is not exact (MATERIAL, p=0.0166; ANNFIL, p=0.0921). To test the second hypothesis, we make a distinction between under- and overstatements.

The results of the OLS regression with Rogers' corrected estimates for standard errors for understatements are reported in Table 1.6 Panel A and the results of the OLS regression with Rogers' corrected estimates for standard errors for overstatements are reported in Table 1.6 Panel B. Both models are highly significant and have an adjusted R^2 of respectively 49.60% and 65.61%.

The significance of the parameter estimates is consistent with the second hypothesis. Concerning the second hypothesis, we see that the test variables PERVASIV and PERSIST are not significant: we do not find evidence that restatements where a large number of account groups are involved lead to a larger reaction of the cost of public debt, or that there is any positive relation between the announcement effect on bond prices and the number of quarters being restated (Panel A: PERVASIV, p=0.7112; PERSIST, p=0.5791; Panel B: PERVASIV, p=0.9125; PERSIST, p=0.1682). In Table 1.5 we report a significant positive reaction of MATERIAL in general (p=0.0089), but when we split up the restatements into under- and overstatements the results indicate that the bond market's reaction is significantly more pronounced negative around the announcement of an overstatement with larger materiality (Panel B: MATERIAL, p=0.0351), and we report no significant fluctuation in the cost of debt for understatements with larger materiality (Panel A: MATERIAL, p=0.3534). Thus, bad news announcements, such as overstatements with a larger materiality, lead to larger cost of public debt. The results are consistent with hypothesis 2a and hypothesis 2b.

Concerning the third hypothesis, we find a significant positive impact on the announcement effect on bond prices when the quantification of the materiality of the restatement at the announcement is not exact (Panel A: ANNFIL, p=0.0862; Panel B: ANNFIL, p=0.0769) but only at a 10% level. Bondholders react significantly more negatively around the announcement of restatements, both under- and overstatements, when the announcement of the restatement includes a non-exact measure of the effect of the restatement. This finding is consistent with the third hypothesis, being vague is always worse than being exact.

The coefficient estimates of the control variables in the model are all not significant, except for the coefficient estimate of ROA, in both models, which is significantly negative as expected (Panel A: p=0.0085; Panel B: p=0.0045), and the coefficient estimate of RATING, in the overstatement model, which is significantly negative as expected (Panel B: p=0.0007) .

Finally, we find that in some industries there are significantly more restatements with small materiality than restatements with large materiality (e.g., manufacturing industry). On top of the finding that larger materiality leads to a larger CAC7 for corrections of overstatements, the industry effects indicate that industries known for their large materiality have significantly less impact on the bond market response than industries known for their small materiality.

The year dummies indicate a significantly larger announcement effect on bond prices when the restatement announcement takes place in the year 2000 than in the year 2002 and in the year 2001 than in the year 2002, i.e. when the restatement was announced before the Enron case (Panel A: DY2, p=0.0087; Panel B: DY1, p=0.0008; DY2, p<.0001).[34] A possible explanation for these results can be that investors became "familiar" with restatements after the Enron case.

Table 1.5: OLS regression with Rogers' corrected estimates for SE

		model 1 (CAC7)	
.variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.3962097	0.3927 (-0.86)
PERVASIV	+	0.0153835	0.9333 (0.08)
MATERIAL	+	3.2840537	0.0166** (2.49)
PERSIST	+	-0.0216326	0.2766 (-1.10)
ANNFIL	+	0.0749408	0.0921* (1.72)
POSNEG	+	-0.0363636	0.4037 (-0.84)
RATING	-	-0.0052939	0.6685 (-0.43)
SIZE	?	0.0264866	0.1717 (1.39)
LEV	+	0.1873307	0.3143 (1.02)
ROA	-	-1.6199717	0.0171** (-2.47)
DY1	?	0.2724932	0.0019** (3.29)
DY2	?	0.2025277	0.0021** (3.25)
model adjusted R^2 without test variables		0.3936	
model adjusted R^2		0.5078	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the

[34] The restatement of Enron was announced on November 8, 2001. When including a dummy, indicating whether the announcement of the restatement was made before or after November 8, 2001, our results did not change.

number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

Table 1.6: OLS regression – under- and overstatements

Panel A:
Understatement

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		0.3474573	0.0028** (3.35)
PERVASIV	+	0.0282249	0.7112 (0.37)
MATERIAL	?	1.035971	0.3534 (0.95)
PERSIST	+	-0.0160112	0.5791 (-0.56)
ANNFIL	+	0.0469038	0.0962* (1.70)
RATING	-	-0.0044432	0.1964 (-1.33)
SIZE	?	-0.009094	0.1834 (-1.35)
LEV	+	-0.0156051	0.716 (-0.37)
ROA	-	-0.3752813	0.0085** (-2.88)
DY1	?		
DY2	?	0.0091472	0.0087** (2.87)
model adjusted R^2		0.496	
Pr > F		<.0001**	
number of clusters		24	
number of observations		56	

Table 1.6 (*continued*)

Panel B:
Overstatement

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-1.3496784	0.1647 (-1.44)
PERVASIV	+	0.0231255	0.9125 (0.11)
MATERIAL	+	4.0576041	0.0351** (2.24)
PERSIST	+	-0.0326635	0.1682 (-1.42)
ANNFIL	+	0.073378	0.0769* (1.81)
RATING	-	-0.0440043	0.0007** (-3.91)
SIZE	?	0.078781	0.2224 (1.24)
LEV	+	0.2724381	0.2934 (1.08)
ROA	-	-1.3992415	0.0045** (-3.14)
DY1	?	0.500147	0.0008** (3.88)
DY2	?	0.373717	<.0001** (6.45)
model adjusted R^2		0.6561	
Pr > F		<.0001**	
number of clusters		25	
number of observations		87	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = $\sum$ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

Further analysis compares the reaction in the debt market and in the equity market. We investigate whether the reaction of the bondholders differs from the reaction of the stockholders. To

measure the reaction of bondholders we take the announcement effect on bond prices (CAC) and to measure the reaction of the stockholders we take the announcement effect on stock prices (CAR). As there are 49 restating firms, we have a sample of 49 CARs. If a firm has multiple bond issues, the announcement effect on bond prices is the average of all traded bonds with available data, so we also have a sample of 49 CACs. The average of the announcement effect on bond prices of all traded bonds of one company is measured consistent with Hand et al. (1992), and Chatterjee et al. (2004). Table 1.7 presents the results of this comparison.

Table 1.7: Comparison of reaction of bondholders and reaction of stockholders

		model (CAC7)		model (CAR7)	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-0.0343284	0.9411 (-0.07)	-0.2633977	0.4249 (-0.81)
PERVASIV	+ / -	-0.0688894	0.6419 (-0.47)	-0.0455614	0.7632 (-0.30)
MATERIAL	+ / -	5.5721363	0.0009** (3.54)	-0.0919179	0.0110** (2.65)
PERSIST	+ / -	-0.0350844	0.1591 (-1.43)	0.0003233	0.9855 (0.02)
ANNFIL	+ / -	0.076434	0.0448** (2.06)	-0.0129118	0.7279 (0.35)
POSNEG	+ / -	-0.0290061	0.4944 (-0.69)	0.0358017	0.1436 (1.49)
RATING	-	-0.005128	0.7674 (-0.30)		
SIZE	?	0.0109898	0.5914 (0.54)	0.0203623	0.187 (1.34)
LEV	+ / -	0.0314303	0.8634 (0.17)	-0.2699343	0.0424** (2.09)
ROA	- / +	-1.9889001	0.0107** (-2.66)	0.0577694	0.9135 (0.11)
DY1	?	0.2031597	0.0095** (2.71)	-0.2612336	<.0001** (-5.75)
DY2	?	0.1518984	0.0035** (3.08)	0.0427943	0.3933 (0.86)
model adjusted R^2		0.6874		0.4633	
Pr > F		<.0001**		<.0001**	
number of observations		49		49	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity), for each restating firm: the average is taken of CAC7 of all traded bonds with available data; CAR7 = announcement effect on stock prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily return of the stock price – daily return of the market index); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum

number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

When using a sample of 49 CACs and 49 CARs, we report an increase in the announcement effect on bond prices of on average 6.9%, and a decrease in the announcement effect on stock prices around the announcement of the restatement of on average 7.5%. We notice that the reaction of stockholders is larger than the reaction of bondholders. The adjusted R^2 of the CAC7-model (68.74%) is larger than the adjusted R^2 of the CAR7-model (46.33%). The variables MATERIAL is significant in both models (MATERIAL, CAC7-model: p=0.0009, CAR7-model: p=0.0110). A larger materiality, for both under- and overstatements pooled in one sample, stimulates a significantly more negative reaction of bond- and stockholders.

Results indicate that bondholders will react significantly negative when the quantification of the materiality at the announcement is not exact. Stockholders, on the other hand, are indifferent to whether the quantification of the materiality at the announcement is exact or not (ANNFIL, CAC7-model: p=0.0448, CAR7-model: p=0.7279).

In the CAR7-model LEV is significantly negative (p=0.0424), where as in the CAC7-model ROA is significantly negative (p=0.0107); both variables are significant in the expected direction.

The reaction of the stockholders could influence the reaction of the bondholders and vice versa, but consistent with prior literature (e.g., Datta and Iskandar-Datta (1995), Maxwell and Rao (2003), Maxwell and Stephens (2003)), we do not test for two-way causality between the reaction of stockholders and the reaction of bondholders.

1.6.3 Sensitivity checks

We also perform some sensitivity checks that address the following issues: alternative definitions for the dependent and the test and control variables at the announcement of the restated financial statements, and the exclusion of the one restatement announced in 2000.

1.6.3.1 Dependent variable

We changed the time period over which the announcement effect on bond prices is calculated. CAC7 is replaced by CAC5, the announcement effect on bond prices cumulated over a time period of two days before the announcement of the restatement till two days after the announcement of the restatement (the left hand side model in Table 1.8), or CAC3, the

announcement effect on bond prices is calculated over a time period of three days, day of the announcement of the restatement + two days after the announcement of the restatement (the right hand side model in Table 1.8).[35]

The time period during which the announcement effect on bond prices is calculated has no influence on the results. The adjusted R^2 of the two models, represented in Table 1.8, is respectively 41.36% and 43.60%. In both models, the reaction of the bondholders is significantly more pronounced negative around the announcement of a restatement that involves more materiality (MATERIAL, model CAC5: p=0.0565, model CAC3: p=0.0687). There is also an additional penalty when the announced quantification of the materiality is not exact in the CAC5-model, but not in the CAC3-model (ANNFIL, model CAC5: p=0.0556, model CAC3: p=0.1010). We notice a significant association in the expected direction between ROA and the reaction of the bondholders (ROA, model CAC5: p=0.0453, model CAC3: p=0.0489). We notice that the additional penalty in the bond market for restatements with larger materiality is the most significant in the CAC7 model, and that the additional penalty in the bond market when the exact quantification of the materiality of the restatement is not stated at the announcement date is the most significant in the CAC5 model. The reactions of the cost of public debt to restatements with larger materiality are more significant when the cost of debt is measured during a longer time period.

1.6.3.2 Independent variable

We use an alternative definition for the test variable MATERIAL and the control variables SIZE and ROA. We replace the test variable MATERIAL, the change between the net income of the restated financial statements and the net income of the originally reported financial statements on total assets, by MATERIAL2, the change between the net income of the restated financial statements and the net income of the originally reported financial statements on the absolute value of the earnings, and we replace the test variable MATERIAL, the change between the net income of the restated financial statements and the net income of the originally reported financial statements on total assets, by MATERIAL3, the change between the net income of the restated financial statements and the net income of the originally reported financial statements on sales. Results are reported in Table 1.9 Panel A and Panel B respectively. The adjusted R^2 of the models is 48.89% and 50.06% respectively. The results indicate a significantly more negative reaction of bondholders around the announcement of more material restatements (Panel A: MATERIAL2, p=0.0744; Panel B: MATERIAL3, p=0.0155). We do not get any significant reaction of bondholders when the materiality mentioned in the announcement of the restatement does not give the exact impact in

[35] The mean increase for CAC5 is 4.2% (p-value of t-test = 0.002); the mean increase for CAC3 is 3.7% (p-value of t-test = 0.003).

Panel A, but we find a significantly positive coefficient estimate of ANNFIL in Panel B (Panel A: ANNFIL, p=0.2078; Panel B: ANNFIL, p=0.0501).

Table 1.8: Sensitivity checks – other dependent variable

		model (CAC5)		model (CAC3)	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-0.0417012	0.9262 (-0.09)	0.1667782	0.68 (0.42)
PERVASIV	+	0.0793206	0.683 (0.41)	0.0057512	0.9742 (0.03)
MATERIAL	+	2.1284014	0.0565* (1.96)	2.0084409	0.0687* (1.86)
PERSIST	+	-0.0192645	0.3421 (-0.96)	-0.0189471	0.2662 (-1.13)
ANNFIL	+	0.0763169	0.0556* (1.96)	0.0597509	0.101 (1.67)
POSNEG	+	-0.0034464	0.9179 (-0.10)	-0.015821	0.6051 (-0.52)
RATING	-	-0.0047578	0.5963 (-0.53)	-0.0111129	0.2566 (-1.15)
SIZE	?	0.0036177	0.8261 (0.22)	0.0000048	0.9997 (0.00)
LEV	+	0.1865282	0.2968 (1.06)	0.159084	0.275 (1.10)
ROA	-	-1.4542176	0.0453** (-2.06)	-1.3724222	0.0489** (-2.02)
DY1	?	0.2268933	0.0033** (3.10)	0.242879	0.0013** (3.43)
DY2	?	0.1359171	0.0099** (2.69)	0.1277109	0.0120** (2.62)
model adjusted R^2		0.4136		0.436	
Pr > F		<.0001**		<.0001**	
number of clusters		49		49	
number of observations		143		143	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC5 (CAC3) = announcement effect on bond prices during a time period of 2 days before till 2 days after the announcement of a restatement (during a time period of three days, day of the announcement + 2 days after the announcement) = $\sum$ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; POSNEG*MATERIAL = MATERIAL for the correction of an overstatement, 0 for the correction of an understatement; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets,

measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

We replace the control variable SIZE, natural logarithm of total assets, by SIZE2, the natural logarithm of market capitalization. We find comparable results when using an alternative definition of the magnitude of the company. The results are reported in Table 1.9 Panel C. Further, we replace the control variable ROA, net income on total assets, by EBIT/TA, earnings before interest and taxes on total assets. The variables ROA and EBIT/TA give an indication of the profitability of a firm. The results are reported in Table 1.9 Panel D. Comparable results are indicated. We notice that EBIT/TA also has a significant influence on the reaction of the bondholders in the expected direction (EBIT/TA, p=0.0436).

1.6.3.3 Without restatement announced in year 2000

If we eliminate the single company that announces a restatement in the year 2000 in our sample, the results are comparable to the results in Table 1.5. The results are reported in Table 1.10. We notice a larger cost of debt when the materiality of the restatement is larger, further we find no additional penalty when the announced quantification of the materiality is not exact (MATERIAL, p=0.0087; ANNFIL, p=0.104). Since we find no significant relation between ANNFIL and the cost of debt, we cannot conclude that the investors prefer that the company stays vague, for example the investors prefer to hear the bad news in phases or that the investors prefer exactness of the announced quantification of the materiality of the accounting restatement. The variable DY2 is significantly positive, indicating that the announcement effect on bond prices is larger when the restatement announcement takes place in 2001 than in 2002.

Table 1.9: Sensitivity checks – other independent variable

Panel A: Materiality

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.1986789	0.6938 (-0.40)
PERVASIV	+	-0.0796552	0.6511 (-0.46)
MATERIAL2	+	0.108326	0.0744** (1.83)
PERSIST	+	-0.030468	0.1898 (-1.33)
ANNFIL	+	0.0608205	0.2078 (1.28)
POSNEG	+	-0.0192191	0.677 (-0.42)
RATING	-	-0.0087057	0.4837 (-0.71)
SIZE	?	0.0224605	0.2549 (1.15)
LEV	+	0.281909	0.13 (1.54)
ROA	-	-1.7261048	0.0530* (-1.99)
DY1	?	0.2762451	0.0018** (3.31)
DY2	?	0.186617	0.0031** (3.12)
model adjusted R^2		0.4889	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

Table 1.9 (*continued*)

Panel B: Materiality

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.4995365	0.2937 (-1.06)
PERVASIV	+	-0.0971941	0.5653 (-0.58)
MATERIAL3	+	2.6351596	0.0155** (2.51)
PERSIST	+	-0.0157786	0.4141 (-0.82)
ANNFIL	+	0.0928271	0.0501* (2.01)
POSNEG	+	-0.0260319	0.568 (-0.58)
RATING	-	-0.0083603	0.5402 (-0.62)
SIZE	?	0.0347576	0.1027 (1.67)
LEV	+	0.2541382	0.1471 (1.47)
ROA	-	-1.7843178	0.0108** (-2.66)
DY1	?	0.2781	0.0031** (3.13)
DY2	?	0.2071431	0.0039** (3.04)
model adjusted R^2		0.5006	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

Table 1.9 (*continued*)

Panel C: Size			
		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.4158936	0.0915* (-1.72)
PERVASIV	+	0.0599204	0.7501 (0.32)
MATERIAL	+	3.2895957	0.0057** (2.90)
PERSIST	+	-0.0244261	0.209 (-1.27)
ANNFIL	+	0.0963009	0.0324** (2.21)
POSNEG	+	-0.061304	0.1516 (-1.46)
RATING	-	-0.004547	0.7121 (-0.37)
SIZE2	?	0.0243992	0.109 (1.63)
LEV	+	0.3480628	0.0458** (2.05)
ROA	-	-1.5658315	0.0259** (-2.30)
DY1	?	0.3149522	0.0005** (3.75)
DY2	?	0.2236614	0.0007** (3.64)
model adjusted R^2		0.5435	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

Table 1.9 (*continued*)

Panel D: Profitability			
		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.3851281	0.4359 (-0.79)
PERVASIV	+	0.0516126	0.7842 (0.28)
MATERIAL	+	3.7867336	0.0035** (3.08)
PERSIST	+	-0.0160902	0.4189 (-0.82)
ANNFIL	+	0.0775317	0.0891* (1.74)
POSNEG	+	-0.0383455	0.3901 (-0.87)
RATING	-	-0.0043363	0.7307 (-0.35)
SIZE	?	0.0238531	0.2257 (1.23)
LEV	+	0.2337087	0.2358 (1.20)
EBIT/TA	-	-0.5876097	0.0507* (-2.01)
DY1	?	0.2431112	0.0030** (3.14)
DY2	?	0.2027393	0.0026** (3.19)
model adjusted R^2		0.4803	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; MATERIAL2 = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by absolute value of earnings; MATERIAL3 = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by sales; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; SIZE2 = natural logarithm of market capitalization, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; EBIT/TA =

earnings before interest and taxes on total assets, measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

Table 1.10: Sensitivity checks – without restatement announced in year 2000

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.3969539	0.3905 (-0.87)
PERVASIV	+	0.0153685	0.9332 (0.08)
MATERIAL	+	3.2851378	0.0087** (2.74)
PERSIST	+	-0.0216333	0.2753 (-1.10)
ANNFIL	+	0.0750228	0.104 (1.66)
POSNEG	+	-0.0364473	0.4016 (-0.85)
RATING	-	-0.0052306	0.6721 (-0.43)
SIZE	?	0.02649173	0.1704 (1.39)
LEV	+	0.1875882	0.3126 (1.02)
ROA	-	-1.620394	0.0169** (-2.48)
DY2	?	0.2025564	0.0021** (3.26)
model adjusted R^2		0.5108	
Pr > F		<.0001**	
number of clusters		48	
number of observations		141	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = $\sum$ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

1.6.4 Additional analysis

1.6.4.1 Reason of restatement

PERVASIV indicates the number of account groups involved in the restatement. We replace this variable by a new dummy variable, REVENUE, that indicates whether the accounting restatement is due to improper revenue recognition or not. Of the 49 restating firms, 25 firms announce a restatement that is due to improper revenue recognition.[36] Results of this additional analysis are reported in Table 1.11.

Results in Table 1.11, when we replace PERVASIV, are similar to those without the replacement. The adjusted R^2 of this model is 50.78%. The test variable MATERIAL is significantly positive (p=0.0076) and the control variable ROA is significantly negative (p=0.0089), while the test variable ANNFIL is only marginally significant (p=0.0845). The variable REVENUE is not significant, just as the variable PERVASIV. We notice that the size of the cost of public debt does not depend whether the restatement is due to improper revenue recognition or not.

It was not possible to include a variable that indicates the initiator of the restatement. Due to the fact that the initiator of some restatements was unknown, only 53 bonds spread over 21 restating firms were left in our sample. We had too few observations of auditor-initiated and SEC-initiated restatements to draw any conclusions. This small number of observations caused severe multicollinearity problems.

[36] We did not check for other restatement reasons, because other reasons had too few observations.

Table 1.11: Additional analysis – reason of restatement

		model (CAC7)	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-0.379925	0.4462 (-0.77)
REVENUE	+	0.0040978	0.9436 (0.07)
MATERIAL	+	3.2512111	0.0076** (2.79)
PERSIST	+	-0.0218366	0.2754 (-1.10)
ANNFIL	+	0.0751746	0.0845* (1.76)
POSNEG	+	-0.0353618	0.4389 (-0.78)
RATING	-	-0.0053357	0.6727 (-0.43)
SIZE	?	0.0259751	0.2023 (1.29)
LEV	+	0.1907172	0.2939 (1.06)
ROA	-	-1.6331282	0.0089** (-2.73)
DY1	?	0.2711106	0.0016** (3.36)
DY2	?	0.2019069	0.0028** (3.16)
model adjusted R^2		0.5078	
Pr > F		<.0001**	
number of clusters		49	
number of observations		143	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = ∑ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); REVENUE = 1 if the restatement is due to improper revenue recognition, 0 otherwise; MATERIAL = the absolute value of the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement; DY1 = 1 if the announcement of the restatement is made in 2000, 0 otherwise; DY2 = 1 if the announcement of the restatement is made in 2001, 0 otherwise;

1.7 CONCLUSION

In this study we investigate the effect of the announcement of a restatement of financial statements on the reaction of bondholders. Most prior research (e.g., Anderson and Yohn (2002), Palmrose et al. (2004), Hirschey et al. (2003)) on the consequences of a restatement has attempted to gain an understanding of how restatements influence the reaction of the shareholders but we focus on the reaction of the bondholders around the announcement of a restatement. The findings of this study are interesting and relevant, because bondholders are one of the key stakeholders served by financial reporting. The bondholders' perspective is important to consider, because the bond market is the most significant external financing channel (for example, proceeds from the issuance of bonds constitute 87.1% of the total three offerings, and the fraction of bonds financing continues to be above 80% in the 1990-1993 period (Anderson et al., 1994)).

Based on a sample of 143 bonds of U.S. restating firms, the results of our study indicate an increase in the cost of public debt of on average 6.2% around the announcement of the restatement. We report an increase in the cost of equity of on average 7.5%. We notice that the reaction of stockholders is larger than the reaction of bondholders. We find that bondholders react significantly more negatively to the announcement of an overstatement with larger materiality. Moreover, the results indicate an additional penalty of the bondholders when the reported quantification of the materiality at the announcement is not exact. Stockholders, on the other hand, react indifferently whether the reported quantification of the materiality at the announcement is exact or not; and the stockholders' reaction is more negative when the materiality is larger.

Another contribution of this research considers the introduction of an innovative way of measuring the cost of public debt for event studies. We use the announcement effect on bond prices to measure the reaction of bondholders around the announcement of a restatement. Our alternative measure is based on daily yields to maturity of bonds and daily yields to maturity of treasury bonds with corresponding maturity.

Limitations of our study include potential biases related to the small sample size (143 bonds). It is difficult to find companies that restate previously filed financial statements and issue public debt, only the largest companies in the GAO database have outstanding bonds surrounding the announcement date of the restatement; also, missing data eliminates restating companies in our sample. Further, we did not include a variable to indicate whether a recent period or an older period should be restated; we also did not use a matched pair design, because of the choice between matching the restating firms and matching the bonds of the restating firms. Each matching has advantages and disadvantages; future research could include the matching procedure. We did not investigate whether the time between the fault in the financial statements and the announcement of

the restatement influences the size of the bond market reaction. Finally, the non-exact quantification of the materiality sample consists of a large variety of observations; observations with an approximate quantification of the materiality, as well as observations with a qualitative indication of the materiality of the restatement are included in our sample.

Chapter 2 Financial Reporting Quality and Incumbent Audit Fees: Evidence from Accounting Restatements

ABSTRACT

In this study we investigate the level of audit fees paid to the incumbent auditor after announcing an accounting restatement. Whereas prior literature focuses on determinants or causes related to audit characteristics of announcing a restatement (e.g., DeFond and Jiambalvo (1991), Kinney and McDaniel (1989)), we examine a consequence concerning audit characteristics of announcing a restatement. We base our research on a sample of 158 U.S. restating companies and their matched companies. Results show that audit fees are larger in the year of the announcement of the accounting restatement for restating companies than for non-restating companies due to extra work and extra engagement risk. The level of audit fees of restating companies is not significantly different in the year before the announcement and in the years following the announcement than in the year of the announcement of the accounting restatement; the audit fees of restating companies are larger than the audit fees of non-restating companies during four years around the restatement announcement. After splitting up the restating companies according to the initiator and the reason of the restatement, we find that audit fees of SEC initiated or auditor initiated restating companies are larger in the year of the restatement announcement than audit fees of company initiated restating companies. We also find evidence that the audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are significantly larger in the year of the announcement of the restatement than the audit fees of companies with restatements due to problems with non-core items.

2.1 INTRODUCTION

We investigate how audit fees paid to the incumbent auditor are affected by an accounting restatement. Prior literature (e.g., DeFond and Jiambalvo (1991), Dechow et al. (1996), Myers et al. (2003), Stanley and DeZoort (2007), Raghunandan et al. (2003)) mainly focuses on the impact of audit-related characteristics of firms on the likelihood of issuing an accounting restatement, whereas we pay attention to the impact of a restatement announcement on audit-related characteristics of a firm. Two features of restatements motivate the relation between restatements and the incumbent audit fees. First, filing a restatement of previously filed financial statements involves extra work. The incumbent auditor needs to audit the newly issued financial statements; this extra audit effort will lead to an increase in the audit fee. Second, an auditor faces an increase in engagement risk when a firm has recently restated its financial statements. To keep this risk to an acceptable level, it is adjusted by decreasing the detection risk, and thus, by increasing the audit fee.

As the incumbent auditor is an important stakeholder of a firm, it is important and relevant for him to know how auditors dealt in the past with the problem of restating companies, how persistent the risk associated with a restatement is, and how the relation between the audit fees and the announcement of a restatement will depend on the initiator and the reason of the restatement. Further, this investigation is important to the firm itself. The audit fee forms not a very large part of the budget of a company, but the difference in the level of audit fees paid could be used for a different goal.[37] As a consequence, an increase in the audit fee after the announcement of a restatement would not have a large impact on the amount of money that the company has to spend. Nevertheless, the firm must know if the audit fee increases after a restatement and if they have less money which can be spend to for example charity which will boost the reputation of the company. So it is relevant for the firm to notice whether it faces after the announcement of a restatement an additional penalty in the form of less money to spend to polish up their image. It is important for a firm to know her money expenses and the differences in money to spend over the years, no matter how small they are, to get a thorough and clear insight in the budget of the firm.

We make two important and relevant contributions with this research to the existing literature. First, we investigate whether the announcement of an accounting restatement has an influence on the paid audit fees. An increase in audit fees immediately after the announcement and filing of the restatement is almost tautological due to the fact that the incumbent auditor has more work (he must also revise and control the restated financial statements); an increase in the number of audit hours leads to larger audit fees. After the announcement of an accounting restatement not

[37] The amount of the audit fee is less than 5% of the amount of the net earnings.

only the work for the incumbent auditor increases, but also his engagement risk. Furthermore, we take a look at the persistence of this relation. Thus we not only investigate the change in the level of audit fees in the year of the restatement announcement, but also after the announcement of an accounting restatement. The fact that there will be more work for the auditor as a result of the restatement, will only have a short-lived impact, and the fact that there will be an increase in the engagement risk, will have a longer run impact. Second, we split the restating companies up according to the initiator and the reason of the restatement, because we expect that the size of the engagement risk depends on these restatement characteristics.[38]

Based on a sample of 158 U.S. restating companies and their matched firms, results show that audit fees are larger in the year of the restatement announcement for restating companies than for non-restating companies due to extra work and extra engagement risk. When testing the persistent effect of the increase in the audit fee after a restatement announcement by introducing interaction variables in our model, we indicate that the more work for the auditor argument only works in the short run and that there is a longer run impact due to the increase in the engagement risk. The level of audit fees of restating companies is not significantly different in the year before the announcement and in the years following the announcement than in the year of the announcement of the restatement. Since the interaction variables are not significant, the main effect counts for the four years around the restatement announcement; the audit fees of restating companies are larger than the audit fees of non-restating companies during four years around the restatement announcement. Further, we split the restating companies up according to the initiator and the reason of the restatement. Results indicate that audit fees of SEC initiated or auditor initiated restating companies are larger in the year of the announcement of the accounting restatement than audit fees of company initiated restating companies. We also find evidence that the audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are significantly larger in the year of the restatement announcement than the audit fees of companies with restatements due to problems with non-core items.

[38] If the auditor initiates the restatement, he has done his job well, because he noticed an accounting error in the financial statements. The auditor recognizes the problems. The firm has made a mistake and the auditor has done why he was hired for. The incumbent auditor discovered the fault when he was controlling the financial statements. The auditor performs his job well and the audit fees paid to the auditor deserve no decrease or an increase, because the well functioning of the incumbent auditor. And if the SEC initiates the restatement, this means that the national control system of the exchanges works well. The accounting mistake in the financial statements is discovered thanks to a thorough inspection by the control system of the SEC. Prior literature (e.g. Callaghan et al. (2008)) indicates that lower SEC scrutiny may result in lower audit fees. We expect that the audit fees of SEC initiated or auditor initiated restating firms are larger than audit fees of company initiated restating firms. If the restatement is due to problems that involve core items, the possibility of litigation against the auditor will increase (Palmrose et al. (2004)), so his engagement risk will increase.

The remainder of this paper is organized as follows. The literature review is discussed in the second section. In section 3, we specify the engagement risk model and we develop our hypotheses. In section 4 we describe the model specification. Next, the sample selection and the data collection are reported. In section 6 we provide an overview of the results of our analyses. To end, the main findings are summarized in section 7 of this paper.

2.2 LITERATURE REVIEW

One category of studies on restatements examines the characteristics of restating firms. DeFond and Jiambalvo (1991) and Dechow et al. (1996) find that having a Big 6/8 auditor does not influence the likelihood of a restatement. According to Kinney and McDaniel (1989) restatement firms are more likely to receive a qualified audit opinion than non-restatement companies.

In investigating the relation between auditor tenure and auditor change, and the likelihood of issuing a restatement, prior literature shows mixed results. Myers et al. (2003) reveals no relation between auditor tenure and restatements, whereas Stanley and DeZoort (2007) and Lazer et al. (2004) report a negative relation. This latter study indicates a large positive relation between auditor change and the incidence of a restatement, Summers and Sweeney (1998), on the other hand, find no relation.

Raghunandan et al. (2003) examines another auditor determinant in the light of the existence of restatements. They find no empirical evidence of a possible association between the fees paid to the auditors and the issuance of a restatement. The results indicate that restating firms are not significantly different from the control group in terms of non-audit fees, fee ratio, and total fees. Kinney et al. (2004) suggests that there is a statistically significant positive association between unspecified non-audit services fees and restatements. Firms with larger unspecified non-audit services fees are more likely to announce a restatement. They also find that tax services fees are typically significantly negatively associated with restatements.

Another stream in the literature investigates the consequences of issuing an accounting restatement (e.g., Hribar and Jenkins (2006), Desai et al. (2006), Kinney and McDaniel (1989), Palmrose et al. (2004), Cornil (2008a)). Few prior studies deal with audit-related consequences of an accounting restatement. Palmrose et al. (2004) show that the probability of a litigation (besides the size and direction of a market reaction) against the company and against the auditor increases after issuing more pervasive restatements and restatements involving core accounts and issues.

2.3 RESEARCH BACKGROUND

2.3.1 Engagement risk model

Auditors face various risks in performing an audit engagement. The term used to describe these set of risk is engagement risk (Colbert et al. (2006)). Engagement risk encompasses risks born by both the auditor and the client entity and consists of three components: the entity's business risk, the auditor's business risk (or simply business risk), and the auditor's audit risk.

The business risk of the entity is associated with the profitability and the survival of the entity, this risk is not controllable by the auditor. The business risk of the auditor is associated with the acceptance or continuance decision of clients in the portfolio of the auditor. The business risk of the auditor is to some level controllable to the auditor. The procedure whether to accept a client or to continue with a client is made before the engagement letter is signed (Colbert et al. (2006)). Once the engagement letter is signed, the auditor's business risk is no longer controllable by the auditor. Audit risk is associated with the nature, timing and the extent of the audit procedures performed. This risk is controllable by the auditor. After the signing of the engagement letter the auditor can only focus on the adjustment of the audit risk to limit the engagement risk at an acceptable level.

The AICPA (1983) discusses the concept of audit risk in SAS No. 47, Audit Risk and Materiality in Conducting an Audit. The audit risk is a combination of inherent risk, control risk, and detection risk. Only the detection risk is controllable to the auditor. Thus, when the engagement risk increases after the announcement of a restatement, the auditor reduces the detection risk by increasing substantive testing in order to keep the engagement risk at an acceptable level.

2.3.2 Hypotheses development

Prior literature (e.g., DeFond and Jiambalvo (1991), Kinney and McDaniel (1989)) pays attention to the audit-related determinants of announcing an accounting restatement, while we focus on the consequences concerning audit characteristics of announcing an accounting restatement. We investigate the impact of announcing an accounting restatement on the paid audit fees.

Prior literature (e.g., Palmrose et al. (2004), Wright and Ashton (1989), Kreutzfeldt and Wallace (1986), Huron Consulting Group (2005)) reports an increase in auditor's business risk and inherent risk after an accounting error. Further, prior literature (e.g., Firth (1990), Dunne et al. (2008)) indicates that the reputation of the auditor could decrease after a bad news announcement, such as the announcement of an accounting restatement, and prior literature (e.g., Michaely and Shaw (1995), Yates Rauterkus and Song (2005)) reports that the decrease in auditor reputation could cause an increase in engagement risk. Since the date of the announcement of the accounting

restatement is not equal to the date of the year end, i.e. the date of the financial statements, an increase in engagement risk could already take place in the year of the announcement of the accounting restatement. We expect that auditors increase their effort in the presence of increased engagement risk in the year of the restatement announcement, consistent with prior literature (e.g., Tsui et al. (2001), Gul et al. (1997), Simunic and Stein (1996), Fargher et al. (2001), Bell et al. (2001), Taylor and Simon (1999), Seetharaman et al. (2002), Lyon and Maher (2005)). This increased effort will lead to an increased audit fee in the year of the announcement of an accounting restratement. The increased engagement risk in the year of the restatement announcement can also result in a higher risk premium associated with restating firms or in employing auditors with higher expertise (e.g., O'Keefe et al. (1994), Hackenbrack and Knechel (1997)); the increased risk premium or the employing of more experienced auditors will lead to an increased audit fee in the year of the announcement of an accounting restatement. As the increase in engagement risk takes place after the accounting error, the impact on audit fees due to an increase of engagement risk can have a longer run impact.

Not only the engagement risk will rise in the year of the announcement of an accounting restatement, also the work load for the external auditor will increase as stipulated in the engagement letter between the auditor and the auditee in the year of the restatement announcement.[39] The more work for the auditor argument has only a short-lived impact.

To summarize, restating firms pay larger audit fees than non-restating firms in the year of the restatement announcement, because either the restating companies are requesting (or external audit firms are requiring) a higher level of service than was previously considered necessary, or because the external audit firms are charging larger fees to cover incremental costs of labor or future risk. This leads to the first hypothesis:

H1: *The audit fees are larger for restating companies compared to non-restating companies in the year of the announcement of the accounting restatement, ceteris paribus.*

One of the characteristics of the restatement concerns the initiator of the restatement. We can distinguish three different initiators: the company itself, the auditor, and the SEC.

[39] In the U.S. every year a new engagement letter is formulated between the audit company and the auditee in which the amount of the audit fee is stipulated. There are two possibilities to declare the amount of audit fee that has to be paid: Fixed Price and Time & Material. In the "Fixed Price" possibility the total price of the audit review is declared in the contract. However, this does not mean that this amount is billed to the auditee. In a normal standard contract there will also be stated that the total fee that is stipulated applies under the assumption that everything goes as predicted. This contract gives reason to discussion with the auditee when billing. In the "Time & Material" possibility the rate per audit hour is declared in the contract. Hence, in both possibilities the total amount of audit fee that has to be paid by the

If the company itself initiates the restatement compared to restatements which were initiated by the auditor or the SEC, this means that the internal control system works well. When the auditor realizes that the internal control system is effective, he can estimate the control risk as being lower. In this case, the audit fees can decrease to keep the engagement risk at an acceptable level. We expect that the audit fees of company initiated restating firms are smaller than audit fees of auditor initiated restating firms or SEC initiated firms.

Besides the company itself, also the incumbent auditor or the SEC can initiate the restatement. If there has been an accounting error and the internal control system has not discovered the fault, there is still a chance that the accounting mistake will be discovered by an external party, e.g., the incumbent auditor or the SEC.

If the auditor initiates the restatement, he has done his job well, because he noticed an accounting error in the financial statements. The auditor recognizes the problems. The firm has made a mistake and the auditor has done why he was hired for. The incumbent auditor discovered the fault when he was controlling the financial statements. The auditor performs his job well and the audit fees paid to the auditor deserve no decrease or an increase, because the well functioning of the incumbent auditor. And if the SEC initiates the restatement, this means that the national control system of the exchanges works well. The accounting mistake in the financial statements is discovered thanks to a thorough inspection by the control system of the SEC. Prior literature (e.g. Callaghan et al. (2008)) indicates that lower SEC scrutiny may result in lower audit fees. We expect that the audit fees of SEC initiated or auditor initiated restating firms are larger than audit fees of company initiated restating firms. This leads to the second hypothesis:

H2: *The audit fees of SEC initiated or auditor initiated restating companies are larger than the audit fees of company initiated restating companies in the year of the announcement of the accounting restatement, ceteris paribus.*

Another characteristic of the restatement concerns the reason of the restatement. We can distinguish two different restatement reasons: restatement due to problems with core items, and restatements due to problems with non-core items.[40]

Prior restatement literature (e.g., Hribar and Jenkins (2006), Agrawal and Chadha (2005), Anderson and Yohn (2002), Callen et al. (2002), Desai et al. (2006), Wu (2002), Moriarty and

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auditee is not perfectly fixed in advance. This also means that the restatement may have an influence on the audit fee in the year of the announcement of the restatement.

[40] We can distinguish restatements due to problems with core items into two groups: restatements due to improper cost accounting and restatements due to improper revenue recognition.

Livingston (2001)) reports that restatements involving core item problems increase the uncertainty for the investors and thus, the entity's business risk. An increase in the entity's business risk means that the engagement risk increases for a restatement involving core item problems; the auditor reduces the detection risk by increasing substantive testing in order to keep the engagement risk at an acceptable level.

Further, Palmrose et al. (2004) shows that restatements involving core item problems, such as revenue recognition items or cost accounting items, increase the likelihood of litigation against the auditor. Thus, the auditor's business risk will increase even more if the announced restatement involves core item problems. The engagement risk model implies that more severe problems should be associated with more audit tests and/or higher risk premiums. This leads to the third hypothesis:

H3: *The audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are larger than the audit fees of companies with restatements due to problems with non-core items in the year of the announcement of the accounting restatement, ceteris paribus.*

Further, two ideas should be spelled out as having an effect on the level of audit fees: the fact that there will be more work for the auditor as a result of the restatement, will only have a short-lived impact, and the fact that there will be an increase in the engagement risk, will have a longer run impact. Therefore, we test the persistent effect of the increase in the audit fee after a restatement announcement by introducing interaction variables in our model. The engagement risk is likely to have a longer-run impact on audit fees. Although we do expect that the engagement risk can increase in the years after the announcement of an accounting restatement (this can be the result of a decrease in the incumbent auditor's reputation (e.g., Michaely and Shaw (1995), Yates Rauterkus and Song (2005))), we have no idea about the size of this increase and whether this increase is significant. We expect that companies that remediated their problems, such as restating firms, continue to pay larger fees in the following years, although no new problems are disclosed, consistent with Hoitash et al. (2007) and Bedard et al. (2006). Moreover, Gregory and Collier (1996) show a significant effect on the audit fees charged when the firm has changed auditors within the last three years. Since the engagement risk of the incumbent auditor changes when a firm changes auditors, Gregory and Collier (1996) reports that a change in engagement risk can cause a persistent effect in the change of the audit fees. Schelleman et al. (2007) on the other hand found no long run impact on the audit fees related to the compliance of specific accounting problems. Thus, prior literature shows mixed results. We do not have any expectations about the evolution of the level of audit fees in the long run.

2.4 MODEL SPECIFICATION AND VARIABLE MEASUREMENT

To test the hypotheses, associated with the consequences of the announcement of a restatement, we use the OLS regression estimation method. The dependent variable in our model is LNFEES, the natural logarithm of the audit fees in the current fiscal year. This information is manually collected from the 10-Ks and the proxy statements. Audit fee models in prior literature typically take one of two forms – the dependent variable is either audit fees deflated by total assets (e.g., Simunic (1980), Simunic (1984)) or the natural log of audit fees (e.g., Francis (1984), Palmrose (1986), and Abdel-Khalik (1986), Francis and Simon (1987)).[41]

To test the first hypothesis a RESTATE variable, some YEAR variables, and the interaction terms between RESTATE and YEAR variables are introduced. The first variable introduced is RESTATE. This indicator variable takes a value equal to one if the firm announces a restatement, and zero otherwise. We expect that restating firms are paying a larger audit fee in the year of the restatement announcement. Second, we also include some indicator variables that control for the time period compared to the year of the announcement of the accounting restatement, year t.[42] YEAR-1 takes a value equal to one if the variables consider 1 year before the announcement of the restatement, zero otherwise, YEAR1 takes a value equal to one if the variables consider 1 year after the announcement of the restatement, zero otherwise, and YEAR2 takes a value equal to one if the variables consider 2 years after the announcement of the restatement, zero otherwise.[43] Finally, some interaction terms between RESTATE and YEAR variables are introduced (RESTATE*YEAR-1, RESTATE*YEAR1, RESTATE*YEAR2). We test the persistent effect of the increase in the audit fee after a restatement announcement by introducing these interaction variables in our model. We do not have any expectations about the evolution of the level of audit fees in the long run.

We include also the main effects in our model as leaving them out could cause serious correlated omitted variables bias. When estimating an n-way interaction, all the simple terms and all possible interactions of lower than n order must be included.[44]

To test the second hypothesis we split the RESTATE variable up according to the initiator of the restatement: the company itself (COMPANY), the auditor (AUDITOR), or the SEC (SEC).

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[41] As we use the natural logarithm of the audit fees as dependent variable in our model, we use the other dependent variable, audit fees deflated by total assets, in the sensitivity checks.

[42] Year t is the year the restatement is publicly announced as stated in the GAO report (2002).

[43] YEAR-1 = year t-1
YEAR1 = year t+1
YEAR2 = year t+2

[44] As the coefficients of the YEAR variables are significant, we can not exclude these variables from our regression model (Kam and Franzese (2005)).

These three dichotomous variables are introduced in our model and replace the RESTATE variable (also in the interaction terms). We expect that the audit fees of SEC initiated or auditor initiated restating companies are larger in the year of the restatement announcement than the audit fees of company initiated restating companies, ceteris paribus.

The variables introduced to test the third hypothesis are REVENUE, COST, and OTHER. These three variables are the result of the splitting up of the RESTATE variable according to the reason of the restatement and replace the RESTATE variable (also in the interaction terms) in our model. The first variable REVENUE equals 1 if the announced restatement is due to improper revenue recognition, 0 otherwise. The second variable COST equals 1 if the announced restatement is due to improper cost accounting, 0 otherwise. The third variable OTHER equals 1 if the announced restatement is due to problems with non-core items. We expect that audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are larger in the year of the restatement announcement than the audit fees of companies with restatements due to problems with non-core items, ceteris paribus.

Following the audit fee literature (e.g., Simunic (1980), Palmrose (1986), Simunic and Stein (1996)), we include several control variables in the audit fee model that might have an influence on the amount of audit fees paid. The control variables in this model are the natural logarithm of total assets (SIZE), the ratio of total liabilities over total assets (LEV), an indicator variable that takes a value equal to one if the firm reports a loss in any of the three previous fiscal years, and zero otherwise (LOSS), the ratio of accounts receivable over total assets (REC/TA), the ratio of inventory over total assets (INV/TA), the natural logarithm of all non-audit fees (LNNAF), the square root of the number of consolidated subsidiaries (SQRTSUBS), the percentage of subsidiaries incorporated in countries other than the U.S. (FOREIGN), the ratio of net income over total assets (ROA), an indicator variable that takes the value one if the firm has a Big 5 auditor, zero otherwise (BIG5), and an indicator variable that takes the value one if the firm has a different external auditor than last year, and zero otherwise (SWITCH). We also include a variable to control for different levels in the inherent risk of the company, the absolute value of the discretionary accruals (ABSDACC). The TACC are the total accruals, defined as net income less cash flow from operations. All the variables, including the intercept, are scaled by total assets at the beginning of the year. The calculation of the discretionary accruals (DACC) is according to the DeAngelo model (1986).

We include some indicator variables that control for the fiscal year that the variables consider: PERIOD1 takes a value equal to one if the variables consider fiscal year 2002, zero otherwise, PERIOD2 takes a value equal to one if the variables consider fiscal year 2003, zero

otherwise, and PERIOD3 takes a value equal to one if the variables consider fiscal year 2004, zero otherwise.[45] This is consistent with Hogan and Wilkins (2007), who also include variables to control for the sample period. Table 2.1 gives an overview of the definitions and the expected signs of the variables. The extreme values in our sample are winsorized at the 95th and the 5th percentile to control for outliers in the analyses.

Given the stated hypotheses and the defined variables, the following regression model will be estimated:

$$LNFEES = \beta_0 + \beta_1 RESTATE + \beta_2 YEAR\text{-}1 + \beta_3 YEAR1 + \beta_4 YEAR2 + \beta_5 RESTATE*YEAR\text{-}1 + \beta_6 RESTATE*YEAR1 + \beta_7 RESTATE*YEAR2 + \beta_8 SIZE + \beta_9 LEV + \beta_{10} LOSS + \beta_{11} REC/TA + \beta_{12} INV/TA + \beta_{13} LNNAF + \beta_{14} SQRTSUBS + \beta_{15} FOREIGN + \beta_{16} ROA + \beta_{17} BIG5 + \beta_{18} SWITCH + \beta_{19} ABSDACC + \beta_{20} PERIOD1 + \beta_{21} PERIOD2 + \beta_{22} PERIOD3 + \varepsilon$$

2.5 SAMPLE AND DATA

2.5.1 Sample selection

We use a matched pair design consistent with prior restatement studies (e.g., Abbott et al. (2004), Kinney et al. (2004)) and consistent with prior audit fee studies (e.g., Seetharaman et al. (2002)). First, we select restating companies. Second, we match these restating companies with a non-restating company in the year before the announcement of the accounting restatement. We matched the restating firms with non-restating firms on industry (2-digit SIC code), on size (total assets), and on year in the year before the restatement announcement. In many studies, such as in our study, where manual data collection is necessary, matched pair design is often used.

2.5.1.1 Selection of restating firms

In selecting the restating sample (see Table 2.2), we use the GAO report (2002) which consists of 919 restatements in the U.S., reported between January 1, 1997, and June 30, 2002.[46] The GAO report (2002) includes company name, ticker symbol, market listing, date of

[45] We include both YEAR and PERIOD variables to emphasize the uniqueness of each observation; for example: we have two observations of restating firms that take place one year after the restatement announcement (YEAR1=1), one in 2002 (PERIOD1=1) and one in 2003 (PERIOD2=1).

announcement of the restatement, shares outstanding, prompter of the restatement, and coded reason of the restatement.[47]

Table 2.1: Variable definitions, model specification and expected signs

	Definition	Expected sign
Dependent variable		
LNFEES	natural logarithm of audit fees	
Independent variables		
Test variables		
RESTATE	1 if the firm announces a restatement, 0 otherwise	+
COMPANY	1 if the firm announces a restatement that is company initiated, 0 otherwise	+
AUDITOR	1 if the firm announces a restatement that is auditor initiated, 0 otherwise	+
SEC	1 if the firm announces a restatement that is SEC initiated, 0 otherwise	+
REVENUE	1 if the firm announces a restatement due to improper revenue recognition, 0 otherwise	+
COST	1 if the firm announces a restatement due to improper cost accounting, 0 otherwise	+
OTHER	1 if the firm announces a restatement due to problems with non-core items, 0 otherwise	+
YEAR-1	1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise	?
YEAR1	1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise	?
YEAR2	1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise	?
Control variables		
SIZE	natural logarithm of total assets	+
LEV	total liabilities on total assets	+
LOSS	1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise	+
REC / TA	accounts receivable on total assets	+
INV / TA	inventory on total assets	+
LNNAF	the natural logarithm of all non-audit fees	?
SQRTSUBS	the square root of the number of consolidated subsidiaries	+
FOREIGN	percentage of subsidiaries incorporated in countries other than the US	+
ROA	net income on total assets	-
BIG5	1 if the firm has a Big5 auditor, 0 otherwise	+
SWITCH	1 if the firm has a different external auditor than last year, 0 otherwise	-
ABSDACC	absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model)	+
PERIOD1	1 if the variables consider fiscal year 2002, 0 otherwise	+
PERIOD2	1 if the variables consider fiscal year 2003, 0 otherwise	+
PERIOD3	1 if the variables consider fiscal year 2004, 0 otherwise	+

[46] This database was created by the U.S. General Accounting Office as required by the Sarbanes-Oxley Act. In GAO (2002) you can find details of the methodology used to create the database.
[47] The coded reason can be: acquisitions & mergers; cost or expense; in-process R&D; reclassification; related-party transactions; restructuring assets or inventory; revenue recognition; securities related; and other.

We select firms with an announcement of a restatement date in 2001 or 2002. We decided to limit the sample to these two years as public disclosure of audit and other related fees is only mandatory for proxy statements filed on February 5, 2001 or later.[48] In the GAO database there are 125 restatements in 2002 and 225 restatements in 2001. We delete 35 restating firms which were finance, insurance or real estate companies.[49] 20 restating firms are foreign and make a reconciliation to US GAAP using form 20-F. As a consequence, they do not file any proxy statements in which the audit fee is listed. We exclude 27 small firms that file form 10KSB instead of form 10-K and form DEF 14A.[50,51] From the remaining restating firms, 86 are deleted because they are acquired by another company, merged with another company, or delisted in the years following the announcement of a restatement, and 1 company is deleted because it went bankrupt in the years following the announcement of the restatement (these 87 companies stopped filing proxy statements and 10-Ks). 23 companies have missing values for forms 10-K and/or DEF 14A. These 23 restating firms are also excluded from our sample. The final sample exists of 158 restatement firms: 84 firms in 2001 and 74 firms in 2002.

Table 2.2: Sample selection

Sample selection
919 restating firms in GAO database
- 569 restating firms announce a restatement in 2000 or earlier
- 35 restating firms are finance, insurance or real estate companies
- 20 restating firms are foreign and make a reconciliation to US GAAP on form 20-F
- 27 restating firms are small businesses who file form 10KSB
- 87 restating firms are acquired by another company, merged with another company, delisted or went bankrupt in the years following the announcement of a restatement
- 23 restating firms have missing values
= 158 restating firms

[48] In an effort to provide investors with more information about the auditor-client relationship, the Securities and Exchange Commission (SEC) revised disclosure rules in November 2000. FRR No. 56 (SEC (2000)) requires public disclosure of audit, financial information system design and implementation, and other non-audit fees in proxy statements filed on or after February 5, 2001.

[49] O'Keefe, Simunic, and Stein (1994) exclude financial institutions in their research concerning the relationship between a single accounting firm's use of different grades of labour and client characteristics.
Simunic (1984) reports significant different audit fees for financial institutions.

[50] 10KSB = Optional form for annual and transition reports of small business issuers under section 13 or 15(d)

[51] Form DEF 14A = proxy statements

2.5.1.2 Selection of control firms

To test the audit fee model in our study, we matched the restating firms with non-restating firms on industry (2-digit SIC code), on size (total assets), and on year in the year before the restatement announcement. Our control sample is based on searching the Worldscope database for U.S. companies.

A limitation of a matched pair design is that it overstates the number of restating companies in our sample. However, the coefficient estimates of the explanatory variables are not affected by unequal sampling rates if the two groups represent an independent variable in the model (e.g., Seetharaman et al. (2002), Desai et al. (2006)). Nevertheless, we have to assume that the omitted variables (which are represented in the error term) are not correlated with the matching variable RESTATE. The distribution of the sample firms (restating and control firms) by 2-digit SIC code is presented in Table 2.3.

2.5.2 Data collection

We collect the necessary data for each restatement firm for 4 years: the year before the announcement of the restatement, year t-1, the year of the announcement of the restatement, year t, and two years after the announcement of the restatement, year t + 1 and year t + 2.[52] Testing for the effects, up to 2 years after the announcement of the restatement, allows for a complete investigation of the longevity of the impact of restatements on audit fees and an examination of whether the effects persist for a longer time period.

The dependent variable is manually collected from the 10-Ks and the proxy statements. Some of the control variables (e.g., LNNAF, SQRTSUBS) are also manually collected from the 10-Ks and the proxy statements. To get the necessary data for the other control variables, we consult the Worldscope database. For the firms with missing values for these data, we check the hardcopy versions of the financial statements, readily downloadable from the Securities and Exchange Commission (SEC) website.

[52] We only got the necessary data for the year before the announcement of the restatement for 64 restating companies.

Table 2.3: Sample companies per 2-digit industry grouping

2-digit SIC code	Industry	Number of companies
13	oil and gas extraction	8
14	nonmetallic minerals, except fuels	2
15	general building contractors	2
16	heavy construction, except building	2
17	special trade contractors	2
20	food and kindred products	20
23	apparel and other textile products	2
26	paper and allied products	2
27	printing and publishing	6
28	chemicals and allied products	28
30	rubber and miscellaneous plastic products	6
32	stone, clay, and glass products	4
33	primary metal industries	4
34	fabricated metal products	2
35	industrial machinery and equipment	40
36	electronic and other equipment	22
38	instruments and related products	34
47	transportation services	2
48	communication	8
49	electric, gas, and sanitary services	20
50	wholesale trade - durable goods	6
51	wholesale trade - nondurable goods	6
53	general merchandise stores	8
54	food stores	2
55	automotive dealers and service stations	2
56	apparel and accessory stores	4
57	furniture and home furnishings stores	4
58	eating and drinking places	2
72	personal services	4
73	business services	42
78	motion pictures	2
79	amusement and recreation services	6
80	heath services	4
83	social services	2
87	engineering and management services	6
		316

2.6 RESULTS

2.6.1 Descriptive statistics and univariate analyses

Table 2.4 shows the descriptive statistics and the results of the univariate tests of the dependent and control variables. We distinguish between the restating and non-restating firms. The univariate results report the differences of a Wilcoxon test between the restating and the non-

restating companies.[53] The descriptive statistics and the univariate results of one year before the announcement of the restatement, the year of the announcement of the restatement, one year after the announcement of the restatement, and two years after the announcement of the restatement are respectively reported in Panel A, Panel B, Panel C, and Panel D of Table 2.4. The results indicate that the audit fees differ significantly between the restating and the non-restating sample in the year of the announcement of the restatement and one year after the announcement of the restatement (LNFEES, Panel A: p-value = 0.1539; Panel B: p-value = 0.0095; Panel C: p-value = 0.0481; Panel D: p-value = 0.2103). The difference is significantly the strongest in the year of the restatement announcement and decreases afterwards. These univariate results are consistent with the first hypothesis that audit fees of restating companies are larger in the year of the announcement of an accounting restatement than audit fees of non-restating companies. In contrast, for most control variables the restating and non-restating samples do not significantly differ for the four reported time periods.

2.6.2 Multivariate analyses

2.6.2.1 Restating versus non-restating companies

To test if the incumbent audit fees differ between our restating and non-restating sample in the year of the restatement announcement and the persistence of this difference, we use an OLS regression.

In this case the residuals are not independent and identically distributed, but are correlated across observations within one firm. We correct for the observed correlation between the residuals by adjusting the standard errors for correlation within a cluster by using Rogers' corrected estimates for standard errors (Rogers (1993)). Without the correction, the OLS standard errors are biased downward and the magnitude of this bias is increasing in the magnitude of the firm effect, thus we use an OLS regression with Rogers' corrected estimates for standard errors.

We test if there are any multicollinearity problems between the independent variables. We calculate the correlation matrix (see Appendix 2.A) and the VIF factors; no multicollinearity was detected. Further, we checked if there were no heteroscedasticity problems between the error terms, using the White procedure; no heteroscedasticity was detected (p=0.367).

To test the first hypothesis, we pooled the data of the restating and the non-restating companies for four years. The results of the multivariate analysis with Rogers' corrected estimates for standard errors are presented in Table 2.5. The first model we estimate serves as a baseline

[53] Non-parametric Wilcoxon tests are used instead of parametric t-tests since the dependent variables are not normally distributed.

model and does not include the test variables. This model is based on prior audit fees studies. Model 2 represents the OLS regression on the full model and tests hypothesis 1.

Table 2.4: Descriptive statistics and univariate test of differences between restating firms and non-restating firms

Panel A: 1 year before restatement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test[†]
FEES	1294280	424000	186500	1413282	629697.8	302228	158500	758000	0.1539
LNFEES	13.10608	12.95709	12.1362	14.1581	12.74445	12.61892	11.9735	13.5384	0.1539
TA	4937113	443056	114894	4248034	3173952	511311	109180	2329028	0.8398
SIZE	20.27261	19.9092	18.5584	22.1662	20.13089	20.05228	18.5084	21.542	0.8398
LEV	0.283568	0.24815	0.0665	0.43675	0.268463	0.2622	0.02005	0.46235	0.5269
REC / TA	0.136222	0.119051	0.053754	0.178612	0.131251	0.103963	0.059297	0.182531	0.9261
INV / TA	0.099297	0.067766	0.005807	0.154977	0.11291	0.068408	0.019065	0.177108	0.6732
NAF	3166595	607700	123225	2148000	1885387	374387	56700	1584500	0.2211
LNNAF	13.06467	13.31722	11.7217	14.5775	12.58323	12.83279	10.94114	14.27558	0.2211
SQRTSUBS	5.704742	3.739267	2.23607	6.99854	4.986942	3.534826	2.11803	6.12032	0.5364
FOREIGN	0.325772	0.25303	0	0.6	0.323406	0.309524	0	0.62868	0.8477
ROA	-0.07392	0.0164	-0.03307	0.035769	-0.04577	0.02421	-0.05705	0.060813	0.4373
ABSDACC	0.12705	0.045214	0.017675	0.094863	0.12702	0.044797	0.011952	0.115968	0.8659

Table 2.4 ***(continued)***

Panel B: year of restatement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
FEES	1748490	606875	245350	1740000	905708.1	387050	190000	1088654	0.0095**
LNFEES	13.14234	13.41234	12.4104	14.3694	13.00765	12.86628	12.15478	13.90045	0.0095**
TA	4394208	501328	166651	3402395	2961234	601790	147506	2606772	0.9309
SIZE	20.3237	20.0318	18.9314	21.9477	20.30238	20.21506	18.8094	21.6814	0.9309
LEV	0.437552	0.420949	0.2329	0.6059	0.419814	0.364609	0.202639	0.620977	0.2871
REC / TA	0.142438	0.118303	0.06497	0.193672	0.128614	0.107966	0.06493	0.173918	0.3107
INV / TA	0.104859	0.08173	0.003287	0.171139	0.113743	0.068119	0.005589	0.177166	0.9458
NAF	2265790	476713	104936	1541000	1319325	412589	97442	1346000	0.2221
LNNAF	12.68062	13.07466	11.56111	14.24794	12.14529	12.92982	11.48701	14.11265	0.2221
SQRTSUBS	5.942793	4.690416	2.23607	8.06226	4.954554	3.872983	2.23607	6.32456	0.1923
FOREIGN	0.383348	0.333333	0	0.711538	0.354898	0.291005	0	0.661538	0.4083
ROA	-0.12165	0.00899	-0.09615	0.053415	-0.06505	0.01437	-0.07263	0.05139	0.6807
ABSDACC	0.127583	0.039731	0.017164	0.112916	0.08607	0.029908	0.017746	0.087866	0.3836

Panel C: 1 year after restatement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
FEES	1941436	669947	281410	2037079	1012463	499500	217046	1303000	0.0481**
LNFEES	13.52568	13.41495	12.5476	14.527	13.21534	13.12135	12.2879	14.0802	0.0481**
TA	4507237	492549	129426	3327500	2945539	569005	133386	2751022	0.8147
SIZE	20.33167	20.0143	18.6786	21.9255	20.31368	20.15917	18.7088	21.7352	0.8147
LEV	0.433341	0.3951	0.217579	0.6109	0.410694	0.354855	0.219551	0.598313	0.4461
REC / TA	0.140368	0.103515	0.061089	0.195574	0.128722	0.105093	0.051761	0.177711	0.3535
INV / TA	0.102593	0.075402	0.00346	0.161825	0.108449	0.048752	0.003383	0.166593	0.8177
NAF	1559945	379457	107533	1081000	998959	297224	87394	1003801	0.4513
LNNAF	12.42259	12.84647	11.58555	13.8934	12.19761	12.60212	11.37818	13.8193	0.4513
SQRTSUBS	5.879771	4.690416	2.44949	7.54983	4.950073	4	2.23607	6.55744	0.2803
FOREIGN	0.391259	0.338542	0	0.711864	0.36042	0.279954	0	0.681818	0.4435
ROA	-0.07917	0.00621	-0.06956	0.045507	-0.03926	0.02182	-0.03681	0.05964	0.1116
ABSDACC	0.071082	0.024769	0.009776	0.058612	0.08808	0.029788	0.012119	0.072191	0.1484

Table 2.4 ***(continued)***

Panel D: 2 years after restatement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
FEES	2893196	942850	335000	2651509	1405939	732274	307000	1915745	0.2103
LNFEES	13.77935	13.75665	12.7219	14.7906	13.53041	13.50243	12.6346	14.4656	0.2103
TA	4583758	538450	131334	3562300	3064264	656145	152685	3199978	0.8061
SIZE	20.37762	20.10256	18.6933	21.9937	20.39942	20.29876	18.8439	21.8864	0.8061
LEV	0.428701	0.387321	0.2017	0.598362	0.409177	0.367806	0.2199	0.572371	0.687
REC / TA	0.146038	0.124631	0.071261	0.191362	0.13165	0.111338	0.056965	0.189319	0.3125
INV / TA	0.109206	0.083673	0.00354	0.165821	0.109302	0.044166	0.00261	0.171426	0.5186
NAF	1000674	400831	100750	976506	722605	252305	82200	743827	0.1218
LNNAF	12.38972	12.9013	11.5204	13.79174	11.89462	12.43835	11.31691	13.51956	0.1218
SQRTSUBS	5.81747	4.470737	2.44949	7.68115	5.179434	4.123106	2.44949	6.85565	0.5092
FOREIGN	0.3929	0.361413	0	0.73494	0.369008	0.277473	0	0.696629	0.5848
ROA	-0.04033	0.02047	-0.04938	0.05852	0.005596	0.033658	-0.01109	0.075698	0.0678*
ABSDACC	0.0796	0.028771	0.012524	0.078602	0.07524	0.022684	0.01076	0.096467	0.5188

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)
† non-parametric Wilcoxon tests are used instead of parametric t-tests since the dependent variables are not normally distributed

Where FEES = audit fees; LNFEES = natural logarithm of audit fees; TA = total assets; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; NAF = all non-audit fees; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model);

The baseline model, model 1, is significant: the p-value of the F-statistic is <.0001 and the adjusted R^2 is 78.48%, which indicates a good explanatory power. Most of the control variables are significant. The coefficients of these variables are significant in the expected direction, except for the coefficient of SWITCH, but the coefficient is only significant at the 10% level. In contrast to prior "low-balling" research, but consistent with the results of Bedard et al. (2006), we report that new auditors charge larger fees. The natural logarithm of the non-audit fees paid is significantly positively related to the natural logarithm of the audit fee (LNNAF, p=0.0118). Prior studies reporting a significant positive association between audit and non-audit fees (e.g., Simunic (1984), Palmrose (1986), DeBerg, Kaplan, and Pany (1991), Davis, Ricchiute, and Trompeter (1993), Barkness and Simnett (1994), Craswell (1999), Bell, Landsman, and Shackelford (2001)) suggest knowledge spillovers occur from one service to another.[54] A possible explanation for the significantly positive coefficients of the PERIOD variables is that the increase in risk for the auditors due to large amounts of frauds in the early 2000's has led to increased regulatory attention in the audit profession.

The full model is highly significant (p-value of F-statistic <.0001) and has an adjusted R^2 of 79.35%; knowledge about whether the company announces a restatement or not adds much explanatory power to our model.

The results of the 2nd model indicate that the audit fees of restating firms are significantly larger than the audit fees of non-restating firms in the year of the restatement announcement (RESTATE, p=0.0002). This finding is consistent with hypothesis 1 that audit fees of restating companies are larger than audit fees of non-restating companies in the year of the announcement of the accounting restatement. We include interaction terms in our model to test if the level of audit fees of restating companies is persistent. The results of the 2nd model indicate that the audit fees of restating companies are not significantly smaller in the year before the announcement of the restatement and in the first and the second year after the announcement of the restatement compared to the audit fees of restating companies in the year of the announcement of the restatement (RESTATE*YEAR-1, p=0.7970). Since this interaction variable is not significant, we have to look at the main effect RESTATE which will also indicate how audit fees of restating firms behave versus audit fees of non-restating firms in the year before the announcement of the accounting restatement. Thus, the results indicate that there was already a difference between the audit fees of restating and non-restating companies in the year before the announcement of the restatement. This

[54] Prior literature (e.g., Simunic (1984), Palmrose (1986), DeBerg, Kaplan, and Pany (1991), Davis, Ricchiute, and Trompeter (1993), Barkness and Simnett (1994), Craswell (1999), Bell, Landsman, and Shackelford (2001)) talks about knowledge spillovers when there is a positive relation between audit fees and non-audit fees. They expect that a more thorough inspection leads to an increase of both audit and non-audit fees.

can be due to the fact that there are some news releases of the potential restatement prior to the year of the announcement, and thus, it can be possible that the audit firm of a restating company experiences a certain engagement risk before the announcement, and already charge larger audit fees in the year before the restatement announcement. The audit fees of restating companies seem to decrease in the two years after the announcement of the restatement compared to the audit fees of restating firms in the year of the announcement, but this decline is not significant (RESTATE*YEAR1, p=0.4708; RESTATE*YEAR2, p=0.2046). Since also these interaction variables are not significant, the main effect RESTATE also rules in the long run which means that the audit fees of restating companies are larger than the audit fees of non-restating companies in the first and the second year after the restatement announcement. The association between the audit fees and RESTATE is significant in the short run mainly due to the more work for the auditor argument and also significant in the somewhat longer run.[55] As mentioned before we found mixed results in prior literature concerning the persistent effect of the increase audit fees after a company remediated the problem. Our results show, consistent with Hoitash et al. (2007) and Bedard et al. (2006), that there is an increase in the audit fees due to restatement problems beyond the first year.

The variables YEAR1 and YEAR2 are significantly negative (YEAR1, p=0.0463; YEAR2, p=0.0685). These results indicate that audit fees, for both restating and non-restating firms, were smaller in the first and in the second year after the restatement announcement than in the year of the restatement announcement.[56] It is logic that audit fees of restating firms will decrease in the first and the second year after the announcement compared with the year of the announcement, as the increase in audit fees due to the extra work load is only present in the year of the announcement. We expect no significant impact on the level of the audit fees of the matched non-restating firms in the first and the second year after the restatement announcement, so it could be possible that the results are driven by the restating companies.

[55] The fact that there will be more work for the auditor as a result of the restatement, will only have a short-lived impact, and the fact that there will be an increase in the engagement risk, will have a longer run impact.
[56] As the interaction effects are not significant, the main YEAR variables count for both restating and non-restating firms.

Table 2.5: Pooled OLS

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		2.675324	<.0001** (6.42)	2.3727319	<.0001** (5.82)
RESTATE	+			0.268808	0.0002** (3.86)
YEAR-1	?			0.0759953	0.382 (0.88)
YEAR1	?			-0.174423	0.0463** (-2.01)
YEAR2	?			-0.2939194	0.0685* (-1.83)
RESTATE* YEAR-1	?			-0.025176	0.797 (-0.26)
RESTATE* YEAR1	?			-0.0375118	0.4708 (-0.72)
RESTATE* YEAR2	?			-0.0927678	0.2046 (-1.27)
SIZE	+	0.4298808	<.0001** (17.33)	0.4369965	<.0001** (18.10)
LEV	+	0.3772478	0.0030** (3.02)	0.4583452	0.0013** (3.27)
LOSS	+	0.0408701	0.2457 (1.17)	0.0367247	0.2353 (1.19)
REC / TA	+	0.901728	0.0039** (2.93)	0.8841635	0.0052** (2.83)
INV / TA	+	0.3474257	0.1746 (1.36)	0.3734842	0.126 (1.54)
LNNAF	?	0.0406437	0.0118** (2.55)	0.0371327	0.0155** (2.45)
SQRTSUBS	+	0.0635841	<.0001** (5.19)	0.0572862	<.0001** (4.75)
FOREIGN	+	0.527001	<.0001** (6.07)	0.5574036	<.0001** (6.03)
ROA	-	-0.6182541	0.0025** (-3.07)	-0.5355684	0.0065** (-2.76)
BIG5	+	0.1408273	0.2035 (1.28)	0.1721164	0.0731* (1.80)
SWITCH	-	0.1227815	0.0987* (1.66)	0.0784719	0.3036 (1.03)
ABSDACC	+	0.9009768	0.0020** (3.15)	1.0111984	0.0004** (3.64)
PERIOD1	+	0.3059948	<.0001** (9.22)	0.4395478	<.0001** (5.60)
PERIOD2	+	0.4549615	<.0001** (12.56)	0.751728	<.0001** (5.06)
PERIOD3	+	0.9162495	<.0001** (13.46)	1.2911604	<.0001** (5.94)
model adjusted R^2		0.7848		0.7935	
Pr > F		<.0001**		<.0001**	
number of restating firms		158		158	
number of observations		1076		1076	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; RESTATE = 1 if the firm announces a restatement, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; RESTATE*YEAR-1 = 1 if the variables (restating companies) consider 1 year before announcement, 0 otherwise; RESTATE*YEAR1 = 1 if the variables (restating companies) consider 1 year after announcement, 0 otherwise; RESTATE*YEAR2 = 1 if the variables (restating companies) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

According to prior audit fee literature (e.g., Simunic (1980), Simunic (1984)), the auditor opinion also influences the size of the audit fees. As more than 95% of the firms in our sample receive an unqualified audit opinion, the inclusion of this variable does not change the results.

2.6.2.2 Initiator of restatement

Since the initiator of the restatement and the reason of the restatement are two characteristics of restating firms, we decided to split up the sample of the restating firms according to the initiator and the reason of the restatement. We use an OLS regression with Rogers' corrected estimates for standard errors to test the second and the third hypotheses.

Because of an unknown initiator of the restatement for some of the restating companies, we had to reduce our sample. This leads us to a sample of 87 restating companies for which the initiator is known: 21 restatements are SEC initiated (SEC), 65 restatements are company initiated (COMPANY), and 11 restatements are auditor initiated (AUDITOR). A restatement can have more than one initiator.

The results are presented in Table 2.6. Model 1 and 2 represent respectively the baseline model and the full model to test hypothesis 2.

Table 2.6: Pooled OLS – initiator of the restatement

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		2.9440412	<.0001** (5.67)	2.9331179	<.0001** (5.75)
COMPANY	+			0.1654101	0.1097 (1.62)
AUDITOR	+			0.4178034	0.0854* (1.74)
SEC	+			0.6739863	0.0006** (3.58)
YEAR-1	?			0.1180246	0.319 (1.00)
YEAR1	?			-0.1783364	0.1589 (-1.42)
YEAR2	?			-0.3515673	0.1144 (-1.59)
COMPANY* YEAR-1	?			-0.097614	0.4331 (-0.79)
COMPANY* YEAR1	?			-0.0400989	0.6628 (-0.44)
COMPANY* YEAR2	?			-0.1559492	0.1949 (-1.31)
AUDITOR* YEAR-1	?			-0.3956632	0.3132 (-1.01)
AUDITOR* YEAR1	?			-0.3406338	0.1696 (-1.38)
AUDITOR* YEAR2	?			-0.0433262	0.8883 (-0.14)
SEC*YEAR-1	?			0.0958995	0.7112 (0.37)
SEC*YEAR1	?			-0.0867599	0.517 (-0.65)
SEC*YEAR2	?			-0.1018239	0.6478 (-0.46)

Table 2.6 (*continued*)

SIZE	+	0.4196131	<.0001**	0.4151735	<.0001**
			(13.34)		(13.24)
LEV	+	0.4047912	0.0142**	0.4747794	0.0025**
			(2.50)		(3.11)
LOSS	+	0.1819179	0.0313**	0.1592732	0.0578*
			(2.19)		(1.92)
REC / TA	+	1.4169443	0.0001**	1.4237013	<.0001**
			(4.06)		(4.34)
INV / TA	+	0.167257	0.5118	0.3192218	0.1866
			(0.66)		(1.33)
LNNAF	?	0.0322423	0.147	0.0283153	0.1599
			(1.46)		(1.42)
SQRTSUBS	+	0.0633232	0.0002**	0.0592601	0.0001**
			(3.86)		(4.06)
FOREIGN	+	0.4951395	0.0002**	0.4106901	0.0021**
			(3.86)		(3.17)
ROA	-	-0.3670921	0.1712	-0.3852636	0.1158
			(-1.38)		(-1.59)
BIG5	+	0.1229289	0.2804	0.0988586	0.3116
			(1.09)		(1.02)
SWITCH	-	0.0897335	0.4062	0.0192352	0.8588
			(0.83)		(0.18)
ABSDACC	+	0.6719486	0.0864*	0.7044576	0.0542*
			(1.73)		(1.95)
PERIOD1	+	0.3494125	<.0001**	0.4707146	<.0001**
			(6.45)		(4.42)
PERIOD2	+	0.4584097	<.0001**	0.7867838	<.0001**
			(8.13)		(4.20)
PERIOD3	+	0.9208212	<.0001**	1.3704979	<.0001**
			(11.48)		(4.98)
model adjusted R^2		0.7467		0.7714	
Pr > F		<.0001**		<.0001**	
number of restating firms		87		87	
number of observations		610		610	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; COMPANY = 1if the firm announces a restatement that is company initiated, 0 otherwise; AUDITOR = 1 if the firm announces a restatement that is auditor initiated, 0 otherwise; SEC = 1 if the firm announces a restatement that is SEC initiated, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; COMPANY*YEAR-1 = 1 if the variables (restating companies, company initiated) consider 1 year before announcement, 0 otherwise; COMPANY*YEAR1 = 1 if the variables (restating companies, company initiated) consider 1 year after announcement, 0 otherwise; COMPANY*YEAR2 = 1 if the variables (restating companies, company initiated) consider 2 years after announcement, 0 otherwise; AUDITOR*YEAR-1 = 1 if the variables (restating companies, auditor initiated) consider 1 year before announcement, 0 otherwise; AUDITOR*YEAR1 = 1 if the variables (restating companies, auditor initiated) consider 1 year after announcement, 0 otherwise; AUDITOR*YEAR2 = 1 if the variables (restating companies, auditor initiated) consider 2 years after announcement, 0 otherwise; SEC*YEAR-1 = 1 if the variables (restating companies, SEC initiated) consider 1 year before announcement, 0 otherwise; SEC*YEAR1 = 1 if the variables (restating companies, SEC initiated) consider 1 year after announcement, 0 otherwise; SEC*YEAR2 = 1 if the variables (restating companies, SEC initiated) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model);

PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

Both the baseline model and the full model are highly significant (p-value of F-statistic <.0001 in model 1 and 2) and have an adjusted R^2 of respectively 74.67%, and 77.14%; knowledge about the initiator of the restatement adds much explanatory power to our model.

The results of model 2 indicate that the coefficient of SEC and the coefficient of AUDITOR are more significant and larger in the year of the announcement of the accounting restatement than the coefficient of COMPANY (COMPANY, p=0.1097; AUDITOR, p=0.0854; SEC, p=0.0006). These results are consistent with hypothesis 2 that in the year of the restatement announcement SEC-initiated restating companies and auditor-initiated companies pay larger fees than company-initiated restating companies. The interaction variables indicate that the audit fees of restating companies, no matter who the initiator is, do not significantly change over time. Further, we indicate that the coefficient of SEC is more significant and larger in the year of the announcement of the restatement than the coefficient of AUDITOR, however we cannot conclude that the difference in size of the coefficient estimate of SEC and AUDITOR is significant.

Most of the control variables are significant. The coefficients of these variables are significant in the expected direction.

2.6.2.3 Reason of restatement

Because of an unspecified reason of the restatement for some of the restating companies, we had to reduce our sample. This leads us to a sample of 152 restating companies for which the reason is specified: 26 restatements are due to improper cost accounting (COST), 82 restatements are due to improper revenue recognition (REVENUE), and 70 restatements due to another reason (OTHER). A restatement can have more than one reason.

The results are presented in Table 2.7. Model 1 and 2 represent respectively the baseline model and the full model to test hypothesis 3.

Both the baseline model and the full model are highly significant (p-value of F-statistic <.0001 in model 1 and 2) and have an adjusted R^2 of respectively 78.82%, and 7957%.

The results of model 2 show that the audit fees of restatements due to improper cost accounting or improper revenue recognition are significantly larger in the year of the restatement announcement than the audit fees of restatements due to problems with non-core items (COST, p=0.0117; REVENUE, p=0.0009; OTHER, p=0.2267). These results are consistent with hypothesis

3 that companies with restatements due to core item problems pay larger fees in the year of the restatement announcement than companies with restatements due to non-core item problems.

Table 2.7: Pooled OLS – reason of restatement

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		2.6703489	<.0001** (6.22)	2.3958071	<.0001** (5.73)
REVENUE	+			0.2941871	0.0009** (3.40)
COST	+			0.3103217	0.0117** (2.55)
OTHER	+			0.1107694	0.2267 (1.21)
YEAR-1	?			0.1253945	0.1474 (1.46)
YEAR1	?			-0.138423	0.1134 (-1.59)
YEAR2	?			-0.2380876	0.1444 (-1.47)
REVENUE* YEAR-1	?			-0.0396738	0.8011 (-0.25)
REVENUE* YEAR1	?			-0.1650242	0.0507* (-1.97)
REVENUE* YEAR2	?			-0.3170863	0.0028** (-3.04)
COST* YEAR-1	?			0.0509411	0.7247 (0.35)
COST* YEAR1	?			-0.0496074	0.7522 (-0.32)
COST* YEAR2	?			-0.0338716	0.8408 (-0.20)
OTHER* YEAR-1	?			-0.1039275	0.3459 (-0.95)
OTHER* YEAR1	?			-0.0792986	0.3277 (-0.98)
OTHER* YEAR2	?			-0.0377582	0.7234 (-0.35)

Table 2.7 ***(continued)***

SIZE	+	0.4321751	<.0001**	0.4344059	<.0001**
			(17.00)		(17.44)
LEV	+	0.378681	0.0032**	0.4772754	0.0011**
			(2.09)		(3.33)
LOSS	+	0.034599	0.3079	0.036123	0.2532
			(1.02)		(1.15)
REC / TA	+	0.88963	0.0061**	0.8843915	0.0062**
			(2.78)		(2.78)
INV / TA	+	0.3497661	0.2056	0.3411768	0.1873
			(1.27)		(1.32)
LNNAF	?	0.0390312	0.0161**	0.0365112	0.0180**
			(2.43)		(2.39)
SQRTSUBS	+	0.063564	<.0001**	0.0597912	<.0001**
			(5.09)		(4.85)
FOREIGN	+	0.515215	<.0001**	0.5489312	<.0001**
			(5.75)		(5.77)
ROA	-	-0.7151828	0.0003**	-0.6063349	0.0018**
			(-3.71)		(-3.18)
BIG5	+	0.1362368	0.24	0.201529	0.0565*
			(1.18)		(1.92)
SWITCH	-	0.0864144	0.262	0.0386447	0.623
			(1.13)		(0.49)
ABSDACC	+	0.8072585	0.0059**	0.9008999	0.0018**
			(2.79)		(3.17)
PERIOD1	+	0.3155194	<.0001**	0.4672007	<.0001**
			(9.24)		(6.02)
PERIOD2	+	0.4565752	<.0001**	0.7748787	<.0001**
			(12.20)		(5.25)
PERIOD3	+	0.9215908	<.0001**	1.2912024	<.0001**
			(13.14)		(5.88)
model adjusted R^2		0.7882		0.7957	
Pr > F		<.0001**		<.0001**	
number of restating firms		152		152	
number of observations		1038		1038	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; REVENUE = 1 if the firm announces a restatement due to improper revenue recognition; COST = 1 if the firm announces a restatement due to improper cost accounting, 0 otherwise; OTHER = 1 if the firm announces a restatement due to problems with non-core items, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; REVENUE*YEAR-1 = 1 if the variables (restating companies, problems with revenue recognition) consider 1 year before announcement, 0 otherwise; REVENUE*YEAR1 = 1 if the variables (restating companies, problems with revenue recognition) consider 1 year after announcement, 0 otherwise; REVENUE*YEAR2 = 1 if the variables (restating companies, problems with revenue recognition) consider 2 years after announcement, 0 otherwise; COST*YEAR-1 = 1 if the variables (restating companies, problems with cost accounting) consider 1 year before announcement, 0 otherwise; COST*YEAR1 = 1 if the variables (restating companies, problems with cost accounting) consider 1 year after announcement, 0 otherwise; COST*YEAR2 = 1 if the variables (restating companies, problems with cost accounting) consider 2 years after announcement, 0 otherwise; OTHER*YEAR-1 = 1 if the variables (restating companies, problems with non-core items) consider 1 year before announcement, 0 otherwise; OTHER*YEAR1 = 1 if the variables (restating companies, problems with non-core items) consider 1 year after announcement, 0 otherwise; OTHER*YEAR2 = 1 if the variables (restating companies, problems with non-core items) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in

countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

The interaction variables indicate that the audit fees of companies with restatements due to improper revenue recognition in the first and the second year after the announcement of the restatement are significantly smaller than the audit fees of those companies in the year of the restatement announcement (REVENUE*YEAR1, p=0.0507; REVENUE*YEAR2, p=0.0028).

Most of the control variables are significant. The coefficients of these variables are significant in the expected direction.

2.6.3 Sensitivity checks

We also perform some sensitivity checks that address the following issues: alternative definitions for the dependent variable and several independent variables, the use of a balanced sample, the use of a sample without firms that announced twice or three times a restatement in 2001 and/or 2002, and the use of the initiator-sample without restating firms with multiple initiators and their matching non-restating companies.

2.6.3.1 Dependent variable

In the multivariate analyses we take the natural logarithm of the audit fees as dependent variable; we replace the dependent variable by two alternative measures. Firstly, LNFEES is replaced by FEES/TA, audit fees deflated by total assets. This measure is also used in prior literature (e.g., Simunic (1980), Simunic (1984)). We also replace in this model the independent variable LNNAF, the natural logarithm of all non-audit fees, by NAF/TA, all non-audit fees deflated by total assets. The SIZE variable is deleted in the first model, but not in the second model. Secondly, the types of non-audit services provided by the auditing firm are restricted by SOX (2002); therefore we replace LNFEES as dependent variable by LNTOTFEE, the natural logarithm of the sum of the audit fees and the non-audit fees in the current fiscal year. The LNNAF variable is deleted in this model (= model 3).

The first and the second model in Table 2.8 represent the model with FEES/TA as dependent variable, respectively without and with the SIZE variable; the third model in Table 2.8 represents the model with LNTOTFEE as dependent variable.

Table 2.8: Sensitivity checks – other dependent variable

		model 1 (FEES/TA)		model 2 (FEES/TA)		model 3 (LNTOTFEE)	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		0.0005514	0.4208	0.0116726	<.0001**	1.8900776	<.0001**
			(0.81)		(9.39)		(4.18)
RESTATE	+	0.0006646	0.0363**	0.0006621	0.0341**	0.2459826	0.0008**
			(2.11)		(2.14)		(3.40)
YEAR-1	?	0.0004974	0.0675*	0.0003907	0.1323	0.1453297	0.1458
			(1.84)		(1.51)		(1.46)
YEAR1	?	-0.0001716	0.7641	-0.0000986	0.8588	-0.1118383	0.2463
			(-0.30)		(-0.18)		(-1.16)
YEAR2	?	-0.0004817	0.5841	-0.0003721	0.6565	-0.2221024	0.1916
			(-0.55)		(-0.45)		(-1.31)
RESTATE* YEAR-1	?	-0.0003961	0.3131	-0.0003649	0.3315	0.0256564	0.8202
			(-1.01)		(-0.97)		(0.23)
RESTATE* YEAR1	?	-0.0004717	0.1704	-0.0005038	0.1394	-0.0643666	0.2765
			(-1.38)		(-1.49)		(-0.71)
RESTATE* YEAR2	?	-0.0007138	0.0708*	-0.0006825	0.0774*	-0.0518404	0.4798
			(-1.82)		(-1.78)		(-0.71)
SIZE	- / +			-0.000604	<.0001**	0.5180239	<.0001**
					(-9.93)		(21.10)
LEV	+	0.0001742	0.7305	0.0004516	0.3469	0.5035724	0.0005**
			(0.35)		(0.94)		(3.57)
LOSS	+	0.0000945	0.383	0.0000438	0.5391	0.027455	0.3671
			(0.87)		(0.62)		(0.90)
REC / TA	+	0.0032179	0.0036**	0.0011415	0.2535	0.8307987	0.0116**
			(2.96)		(1.15)		(2.55)
INV / TA	+	0.0029438	0.0026**	0.0020287	0.0257**	0.0670442	0.7781
			(3.06)		(2.25)		(0.28)
NAF/TA	?	0.4358393	0.0001**	0.3246611	0.0018**		
			(3.95)		(3.17)		
SQRTSUBS	+	-0.0001401	<.0001**	0.0000416	0.0889*	0.0577749	<.0001**
			(-6.29)		(1.71)		(4.61)
FOREIGN	+	0.0002058	0.6434	0.000257	0.5363	0.7622706	<.0001**
			(0.46)		(0.62)		(8.00)
ROA	-	-0.0050933	0.0002**	-0.0040454	0.0016**	-0.5765357	0.0035**
			(-3.76)		(-3.22)		(-2.97)
BIG5	+	-0.0009311	0.114	-0.0001213	0.8414	0.2367616	0.0198**
			(-1.59)		(-0.20)		(2.35)
SWITCH	-	0.0004511	0.3847	0.0002448	0.6246	-0.034715	0.6596
			(0.87)		(0.49)		(-0.44)
ABSDACC	+	0.0018769	0.2874	0.0016004	0.341	1.457159	<.0001**
			(1.07)		(0.96)		(5.73)
PERIOD1	+	0.001068	0.0108**	0.0009724	0.0158**	0.1528949	0.0845*
			(2.58)		(2.44)		(1.74)
PERIOD2	+	0.0017457	0.0165**	0.0015386	0.0254**	0.2725545	0.0960*
			(2.42)		(2.26)		(1.67)
PERIOD3	+	0.0028426	0.0076**	0.0026231	0.0091**	0.6410639	0.0052**
			(2.70)		(2.64)		(2.83)
model adjusted R^2		0.2877		0.3439		0.8012	
Pr > F		<.0001**		<.0001**		<.0001**	
number of restating firms		158		158		158	
number of observations		1076		1076		1076	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where FEES/TA = audit fees on total assets; LNTOTFEE = natural logarithm of the sum of audit and non-audit fees; RESTATE = 1 if the firm announces a restatement, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; RESTATE*YEAR-1 = 1 if the variables (restating companies) consider 1 year before announcement, 0 otherwise; RESTATE*YEAR1 = 1 if the variables (restating companies) consider 1 year after announcement, 0 otherwise; RESTATE*YEAR2 = 1 if the variables (restating companies) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; NAF/TA = all non-audit fees on total assets; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

The measurement method of the dependent variable has little influence on the results. The adjusted R^2 of the three models, represented in Table 2.8, is respectively 28.77%, 34.39% and 80.12%. The adjusted R^2 of the models with FEES/TA as dependent variable is rather low compared to the adjusted R^2s in the models with LNFEES or LNTOTFEE as dependent variable. The results indicate significantly larger audit fees in the year of the restatement announcement for restating companies than for non-restating companies (RESTATE, models FEES/TA: p=0.0363 and p=0.0341, model LNTOTFEE: p=0.0008). The results show that the audit fees of restating companies are not significantly different in the year before and the first year after the announcement than in the year of the announcement of the restatement, but there is a significant difference between the audit fees of restating companies in the second year after the restatement announcement and in the year of the restatement announcement in the FEES/TA models (RESTATE*YEAR-1, models FEES/TA: p=0.3131 and p=0.3315, model LNTOTFEE: p=0.8202; RESTATE*YEAR1, models FEES/TA: p=0.1704 and p=0.1394, model LNTOTFEE: p=0.2765; RESTATE*YEAR2, models FEES/TA: p=0.0708 and p=0.0774, model LNTOTFEE: p=0.4798).

Most control variables are significant in the expected direction. In contrast to our expectations, we notice a significant negative association between SQRTSUBS and FEES/TA (SQRTSUBS, p<.0001) in the first model, which disappears in the second model when the SIZE variable is included.

2.6.3.2 Independent variable

We replace the control variable ABSDACC, the absolute value of the discretionary accruals, by ABSTACC, the absolute value of the total accruals (total accruals = net income less cash flow from operations). Both the variables give an indication of the company's inherent risk. The results are reported in Table 2.9 Panel A.

We replace the control variable SIZE, the natural logarithm of total assets, by SIZE2, the natural logarithm of market capitalization. Both variables give an indication of magnitude of the company. The results are presented in Table 2.9 Panel B.

The results with the independent variable ABSTACC are comparable to the results with the independent variable ABSDACC; the audit fees of restating companies are significantly larger than the audit fees of non-restating companies in the year of the restatement announcement (RESTATE, p=0.0002). The results with the independent variable SIZE2 are comparable to the results with the independent variable SIZE; the audit fees of restating companies are significantly larger in the year of the accounting restatement than the audit fees of non-restating companies (RESTATE, p=0.0071).

2.6.3.3 Balanced sample

When we test the first hypothesis in the multivariate analyses we use a sample of 1076 observations: 128 observations in the year before the announcement of the restatement, 316 in the year of the announcement, 316 one year after the announcement, and 316 two years after the announcement. We replace this unbalanced sample by a balanced sample: 128 observations in each of the four years. For testing the second and the third hypothesis we also use an unbalanced sample. The results of testing H1 for a balanced sample are presented in Table 2.10.

Whether we have a balance or an unbalanced sample does not influence the results. The adjusted R^2 is 81.29%. The results indicate significantly larger audit fees in the year of the restatement announcement for restating companies compared to non-restating companies (RESTATE, p=0.0181) according to H1. We notice that the level of audit fees of restating companies is not significantly different in the year before the announcement and in the years following the announcement than in the year of the announcement of the accounting restatement (RESTATE*YEAR-1, p=0.6506; RESTATE*YEAR1, p=0.5512; RESTATE*YEAR2, p=0.2166).

Table 2.9: Sensitivity checks – other independent variable

Panel A: Accruals

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		2.4933696	<.0001**
			(6.08)
RESTATE	+	0.2712572	0.0002**
			(3.85)
YEAR-1	?	0.0946996	0.2843
			(1.07)
YEAR1	?	-0.1632298	0.0673*
			(-1.84)
YEAR2	?	-0.275329	0.0952*
			(-1.68)
RESTATE* YEAR-1	?	-0.0472783	0.6333
			(-0.48)
RESTATE* YEAR1	?	-0.0585281	0.2664
			(-1.12)
RESTATE* YEAR2	?	-0.106205	0.1407
			(-1.48)
SIZE	+	0.4327694	<.0001**
			(17.69)
LEV	+	0.4518653	0.0017**
			(3.19)
LOSS	+	0.0490779	0.1637
			(1.40)
REC / TA	+	0.8658095	0.0066**
			(2.75)
INV / TA	+	0.3216092	0.1919
			(1.31)
LNNAF	?	0.0378925	0.0150**
			(2.46)
SQRTSUBS	+	0.0578297	<.0001**
			(4.64)
FOREIGN	+	0.5708313	<.0001**
			(6.13)
ROA	-	-0.5973647	0.0097**
			(-2.62)
BIG5	+	0.1492194	0.1234
			(1.55)
SWITCH	-	0.0967439	0.219
			(1.23)
ABSTACC	+	0.4879991	0.124
			(1.55)
PERIOD1	+	0.4285634	<.0001**
			(5.42)
PERIOD2	+	0.730345	<.0001**
			(4.85)
PERIOD3	+	1.2801604	<.0001**
			(5.78)
model adjusted R^2		0.7901	
Pr > F		<.0001**	
number of restating firms		158	
number of observations		1076	

Table 2.9 (*continued*)

Panel B: Size

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		8.4690386	<.0001**
			(19.24)
RESTATE	+	0.2278263	0.0071**
			(2.73)
YEAR-1	?	-0.0099452	0.9298
			(-0.09)
YEAR1	?	-0.1548969	0.1629
			(-1.40)
YEAR2	?	-0.2552688	0.1983
			(-1.29)
RESTATE* YEAR-1	?	-0.0334298	0.7624
			(-0.30)
RESTATE* YEAR1	?	-0.017366	0.7862
			(-0.27)
RESTATE* YEAR2	?	-0.0636972	0.445
			(-0.77)
SIZE2	+	0.070951	0.0006**
			(3.51)
LEV	+	1.0362481	<.0001**
			(5.52)
LOSS	+	0.0087789	0.8544
			(0.18)
REC / TA	+	-0.4541992	0.2176
			(-1.24)
INV / TA	+	-0.140858	0.6345
			(-0.48)
LNNAF	?	0.0963774	<.0001**
			(4.69)
SQRTSUBS	+	0.1575801	<.0001**
			(9.25)
FOREIGN	+	0.4206952	0.0003**
			(3.68)
ROA	-	0.0675706	0.7577
			(0.31)
BIG5	+	0.5125119	<.0001**
			(4.06)
SWITCH	-	0.025687	0.7933
			(0.26)
ABSDACC	+	0.9129205	0.0145**
			(2.47)
PERIOD1	+	0.3964694	0.0003**
			(3.71)
PERIOD2	+	0.6860741	0.0006**
			(3.49)
PERIOD3	+	1.2514407	<.0001**
			(4.30)
model adjusted R^2		0.6458	
Pr > F		<.0001**	
number of restating firms		158	
number of observations		1076	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; SIZE = natural logarithm of total assets; SIZE2 = natural logarithm of market capitalization; RESTATE = 1 if the firm announces a restatement, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; RESTATE*YEAR-1 = 1 if the variables (restating companies) consider 1 year before announcement, 0 otherwise; RESTATE*YEAR1 = 1 if the variables (restating companies) consider 1 year after announcement, 0 otherwise; RESTATE*YEAR2 = 1 if the variables (restating companies) consider 2 years after announcement, 0 otherwise; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); ABSTACC = absolute value of total accruals (TACC is net income less cash flow from operations); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

2.6.3.4 Without repeated errors

Eight firms of our sample announced twice or three times an accounting restatement in 2001 and/or 2002. The residuals are not independent and identically distributed, but are correlated across these observations. We delete these observations so that our sample consists of 954 observations: 114 observations in the year before the announcement of the restatement, 280 in the year of the announcement, 280 one year after the announcement, and 280 two years after the announcement. The results are presented in Table 2.11.

The results of the reduced sample are comparable to the results of the full sample. The adjusted R^2 is 78.91%, the audit fees of restating companies are significantly larger in the year of the announcement of the accounting restatement than the audit fees of non-restating companies (RESTATE, p=0.0048) and the level of audit fees of restating companies is not significantly different in the year before the announcement and in the years following the announcement than in the year of the announcement of the restatement (RESTATE*YEAR-1, p=0.9392; RESTATE*YEAR1, p=0.3064; RESTATE*YEAR2, p=0.1664).

Table 2.10: Sensitivity checks – balanced sample

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		2.0385389	0.0014**
			(3.35)
RESTATE	+	0.2892079	0.0181**
			(2.43)
YEAR-1	?	-0.3012776	<.0001**
			(-4.78)
YEAR1	?	0.1523674	0.0011**
			(3.43)
YEAR2	?	0.6024947	<.0001**
			(6.49)
RESTATE* YEAR-1	?	-0.0452253	0.6506
			(-0.46)
RESTATE* YEAR1	?	-0.0486161	0.5512
			(-0.60)
RESTATE* YEAR2	?	-0.1593966	0.2166
			(-1.25)
SIZE	+	0.4909949	<.0001**
			(13.43)
LEV	+	0.3024064	0.2436
			(1.18)
LOSS	+	0.059357	0.2724
			(1.11)
REC / TA	+	1.4042141	0.0005**
			(3.69)
INV / TA	+	0.4514732	0.1996
			(1.30)
LNNAF	?	0.0092851	0.6969
			(0.39)
SQRTSUBS	+	0.0582258	0.0006**
			(3.61)
FOREIGN	+	0.6456677	<.0001**
			(4.49)
ROA	-	-0.904303	0.0032**
			(-3.07)
BIG5	+	0.097459	0.4171
			(0.82)
SWITCH	-	0.0412387	0.6896
			(0.40)
ABSDACC	+	0.5376907	0.2103
			(1.27)
model adjusted R^2		0.8129	
Pr > F		<.0001**	
number of restating firms		64	
number of observations		512	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; RESTATE = 1 if the firm announces a restatement, 0 otherwise; RESTATE*YEAR-1 = 1 if the variables (restating companies) consider 1 year before announcement, 0 otherwise; RESTATE*YEAR1 = 1 if the variables (restating companies) consider 1 year after announcement, 0 otherwise; RESTATE*YEAR2 = 1 if the variables (restating companies) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; ; BIG5 = 1 if the firm has a Big5

auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

2.6.3.5 Without multiple initiators

Our sample of restating firms with observations for the initiator of the restatement consists of 87 restating companies. 10 of these firms had multiple initiators, so we deleted these firms that our sample consists of 540 observations. The results are presented in Table 2.12.

The reported results are comparable to the results of the regression analysis on the sample with the multiple initiators. The results indicate that the coefficient of SEC and the coefficient of AUDITOR are more significant and larger in the year of the restatement announcement than the coefficient of COMPANY (COMPANY, p=0.0063; AUDITOR, p=0.0052; SEC, p=0.0002). The interaction variables indicate that the audit fees of restating companies, when the company is the initiator are smaller in the second year after the restatement announcement than in the year of the restatement announcement, and that the audit fees of restating companies, when the SEC is the initiator are smaller in the first and the second year after the restatement announcement than in the year of the restatement announcement (COMPANY*YEAR2, p=0.0195; SEC*YEAR1, p=0.0988; SEC*YEAR2, p=0.0757).

Table 2.11: Sensitivity checks - Without repeated errors

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		2.0545549	<.0001**
			(5.29)
RESTATE	+	0.2040284	0.0048**
			(2.87)
YEAR-1	?	0.0792328	0.3782
			(0.88)
YEAR1	?	-0.1525872	0.1269
			(-1.54)
YEAR2	?	-0.246894	0.1809
			(-1.34)
RESTATE* YEAR-1	?	-0.0076581	0.9392
			(-0.08)
RESTATE* YEAR1	?	-0.0578757	0.3064
			(-1.03)
RESTATE* YEAR2	?	-0.1093417	0.1664
			(-1.39)
SIZE	+	0.4738343	<.0001**
			(19.62)
LEV	+	0.3191737	0.0408**
			(2.06)
LOSS	+	0.0090775	0.8034
			(0.25)
REC / TA	+	0.9282924	0.0062**
			(2.78)
INV / TA	+	0.4060353	0.0917*
			(1.70)
LNNAF	?	0.0138874	0.3893
			(0.86)
SQRTSUBS	+	0.0571389	<.0001**
			(4.60)
FOREIGN	+	0.5156899	<.0001**
			(5.24)
ROA	-	-0.7683677	<.0001**
			(-4.12)
BIG5	+	0.1837861	0.0750*
			(1.79)
SWITCH	-	0.040905	0.589
			(0.54)
ABSDACC	+	0.8281579	0.0052**
			(2.84)
PERIOD1	+	0.4250722	<.0001**
			(4.80)
PERIOD2	+	0.7150361	<.0001**
			(4.19)
PERIOD3	+	1.1995633	<.0001**
			(4.82)
model adjusted R^2		0.7891	
Pr > F		<.0001**	
number of restating firms		140	
number of observations		954	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; RESTATE = 1 if the firm announces a restatement, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; RESTATE*YEAR-1 = 1 if the variables (restating companies) consider 1 year before announcement, 0 otherwise; RESTATE*YEAR1 = 1 if the variables (restating companies) consider 1 year after announcement, 0 otherwise; RESTATE*YEAR2 = 1 if the variables (restating companies) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

Table 2.12: Sensitivity checks – Without multiple initiators

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		2.8888843	<.0001** (4.98)
COMPANY	+	0.3227098	0.0063** (2.81)
AUDITOR	+	0.8188425	0.0052** (2.87)
SEC	+	0.9022416	0.0002** (3.97)
YEAR-1	?	0.1786126	0.1404 (1.49)
YEAR1	?	-0.1859701	0.1694 (-1.39)
YEAR2	?	-0.3879527	0.1001 (-1.66)
COMPANY* YEAR-1	?	-0.1831068	0.194 (-1.31)
COMPANY* YEAR1	?	-0.1378878	0.1657 (-1.40)
COMPANY* YEAR2	?	-0.3007468	0.0195** (-2.38)
AUDITOR* YEAR-1	?	-0.7190345	0.2391 (-1.19)
AUDITOR* YEAR1	?	-0.5618327	0.0950* (-1.67)
AUDITOR* YEAR2	?	-0.3757842	0.3497 (-0.94)
SEC*YEAR-1	?	0.0979229	0.7824 (0.28)
SEC*YEAR1	?	-0.2344623	0.0988* (-1.67)
SEC*YEAR2	?	-0.3895863	0.0757* (-1.80)

Table 2.12 ***(continued)***

SIZE	+	0.4161185	<.0001**
			(12.61)
LEV	+	0.3455731	0.0328**
			(2.17)
LOSS	+	0.1318237	0.1468
			(1.47)
REC / TA	+	1.4903453	<.0001**
			(4.99)
INV / TA	+	0.3282545	0.2307
			(1.21)
LNNAF	?	0.0298197	0.1582
			(1.42)
SQRTSUBS	+	0.0535027	0.0003**
			(3.76)
FOREIGN	+	0.4324623	0.0025**
			(3.12)
ROA	-	-0.3882037	0.1277
			(-1.54)
BIG5	+	0.0905809	0.3833
			(0.88)
SWITCH	-	-0.0433207	0.7121
			(-0.37)
ABSDACC	+	0.6929413	0.0849*
			(1.74)
PERIOD1	+	0.5489717	<.0001**
			(5.16)
PERIOD2	+	0.9062077	<.0001**
			(4.72)
PERIOD3	+	1.588023	<.0001**
			(5.33)
model adjusted R^2		0.7665	
Pr > F		<.0001**	
number of restating firms		77	
number of observations		540	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNFEES = natural logarithm of audit fees; COMPANY = 1if the firm announces a restatement that is company initiated, 0 otherwise; AUDITOR = 1 if the firm announces a restatement that is auditor initiated, 0 otherwise; SEC = 1 if the firm announces a restatement that is SEC initiated, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; COMPANY*YEAR-1 = 1 if the variables (restating companies, company initiated) consider 1 year before announcement, 0 otherwise; COMPANY*YEAR1 = 1 if the variables (restating companies, company initiated) consider 1 year after announcement, 0 otherwise; COMPANY*YEAR2 = 1 if the variables (restating companies, company initiated) consider 2 years after announcement, 0 otherwise; AUDITOR*YEAR-1 = 1 if the variables (restating companies, auditor initiated) consider 1 year before announcement, 0 otherwise; AUDITOR*YEAR1 = 1 if the variables (restating companies, auditor initiated) consider 1 year after announcement, 0 otherwise; AUDITOR*YEAR2 = 1 if the variables (restating companies, auditor initiated) consider 2 years after announcement, 0 otherwise; SEC*YEAR-1 = 1 if the variables (restating companies, SEC initiated) consider 1 year before announcement, 0 otherwise; SEC*YEAR1 = 1 if the variables (restating companies, SEC initiated) consider 1 year after announcement, 0 otherwise; SEC*YEAR2 = 1 if the variables (restating companies, SEC initiated) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if the firm has a different external auditor than last

year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

2.7 CONCLUSION

In this study we investigate the influence of announcing a restatement of previously filed financial statements on the level of audit fees paid to the incumbent auditor. Prior literature (e.g., DeFond and Jiambalvo (1991), Dechow et al. (1996), Myers et al. (2003), Stanley and DeZoort (2007), Raghunandan et al. (2003)) mainly focuses on the impact of audit-related characteristics of firms on the likelihood of issuing an accounting restatement, whereas we pay attention to the impact of a restatement announcement on audit-related characteristics of a firm.

This research is relevant, as the incumbent auditor is an important stakeholder of the firm. Further, this investigation is important to the firm itself. The audit fee forms not a very large part of the budget of a company.[57] As a consequence, an increase in the audit fee after the announcement of an accounting restatement would not have a large impact on the amount of money that the company has to spend. Nevertheless, the firm must know if the audit fee increases after a restatement and if they have less money which can be spend to for example charity which will boost the reputation of the company. So it is relevant for the firm to notice whether it faces after the announcement of a restatement an additional penalty in the form of less money to spend to polish up their image.

Based on a sample of U.S. 158 restating companies and their matched sample, we find that the audit fees are larger in the year of the restatement announcement for restating companies than for non-restating companies due to the extra work and the extra engagement risk. The level of audit fees of restating companies is not significantly different in the year before the announcement and in the years following the announcement than in the year of the announcement of the restatement. Since the interaction variables are not significant, the main effect counts for the four years around the restatement announcement; the audit fees of restating companies are larger than the audit fees of non-restating companies during four years around the restatement announcement. Thus, we notice that audit fees of restating companies are significantly larger than audit fees of non-restating companies in the year before the restatement announcement. This can be due to the fact that there are some news releases of the potential restatement prior to the year of the announcement. When testing the persistent effect of the increase in the audit fee after a restatement announcement by introducing interaction variables in our model, we indicate that the more work for the auditor

[57] The amount of the audit fee is less than 5% of the amount of the net earnings.

argument only works in the short run and that there is a longer run impact due to the increase in the engagement risk.

The second contribution of this study involves the splitting up of the restating companies according to the initiator and the reason of the restatement. Results indicate that audit fees of SEC initiated or auditor initiated restating companies are larger in the year of the announcement of the accounting restatement than audit fees of company initiated restating companies. We also find evidence that the audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are significantly larger in the year of the restatement announcement than the audit fees of companies with restatements due to problems with non-core items.

There are several limitations to our study. First of all, the small sample size (158 restating companies) is due to manual data collection, and publicly availability of audit fee data starting in 2001. Further, we collected data for four years, starting the year before the announcement till two years after the announcement of the restatement. A more extensive timetable could give a decisive answer about the commencement and the persistence of the increase of the audit fees of restating companies. Third, we did not pay any attention to the reaction of the level of the audit fees of other companies in the portfolio of the incumbent auditor of the restating company, and of other companies in the same industry as the restating company. Finally, we noticed that our results are potentially biased by endogeneity problems. Future research could deal with this problem by using an appropriate instrumental variable for the RESTATE variable.

Chapter 3 Is Corporate Governance more Efficient in Preventing Earnings Management after an Accounting Restatement?

ABSTRACT

This study focuses on the efficacy of strong internal governance on earnings management after a restatement announcement. Prior literature, investigating market and accounting consequences in a long time window after the restatement announcement, mainly focuses on the use of a sample of only restating firms (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)), while we pay attention to the use of a matched pair design in investigating whether the influence of strong internal governance on accruals differs between restating and non-restating firms during a period of seven years around the announcement of a restatement. This research contributes to the literature of earnings management and the role of corporate governance (e.g., Carcello et al. (2006), Bowen et al. (2004), Becker et al. (1998), Menon and Williams (2004), Klein (2002)) by adding the restatement announcement characteristic. We used a sample of 137 U.S. restating companies and their matched companies for the research of this association during a period of seven years around the announcement of an accounting restatement. We noticed that for restating companies strong internal corporate governance is not more efficient in preventing earnings management after than before a restatement announcement. Although, accounting faults were discovered in the past, the established internal corporate governance of restating firms will not work more efficiently in preventing the existence of earnings management. Further, results indicate that strong internal corporate governance does not have a significantly positive influence on the non-existence of earnings management for non-restating firms during the period of seven years.

3.1 INTRODUCTION

The purpose of this research is to take a closer look at the accounting quality of financial statement reports, the corporate governance mechanisms of restating firms over a period of seven years around the restatement announcement, and the impact of internal corporate governance on accounting quality in restating and non-restating firms. Most prior literature (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)) investigating market and accounting consequences in a long time window after the restatement announcement uses a sample of only restating firms. We, on the other hand, will use a matched pair design in this study to investigate whether there is a difference in behaviour of corporate governance on earnings management due to the fact that there has been an announcement of an accounting restatement.[58] Prior literature on the relation between corporate governance and earnings quality, to our knowledge, has never focused before on the efficacy of internal governance mechanisms on earnings management for companies that restated recently.

This research is important for the policy maker. He must know whether strong corporate governance works better in a restating or in a non-restating environment, so that he can create an artificial framework where the influence of strong corporate governance performance on earnings quality is always good. This study is also important to investors, with a look on some corporate governance variables, they can judge if strong or weak corporate governance has a positive or a negative influence on the earnings management for restating firms. Finally, the firm itself benefits from this study. The firm gets an idea whether the announcement of an accounting restatement has a positive consequence, namely the efficacy of internal corporate governance on earnings management increases.

The contribution of this study to the existing literature is twofold. First, we consider an accounting based measure of earnings quality, working capital accruals. Further, we measure strong internal governance by a summary variable that contains board of directors and audit committee characteristics, of which the size is not imposed by any legal rules. Second, we examine the relationship between strong internal governance and earnings management for firms who recently announced a restatement of previously filed financial statements. We want to find out if the influence of strong internal governance on earnings management is the same for restating and non-restating companies during a period of seven years around the announcement of a restatement.

We investigate whether the influence of strong internal corporate governance on earnings management differs between restating and non-restating firms by using 137 U.S. restating

companies and their matched sample. The results noticed that for restating companies strong internal corporate governance is not more efficient in preventing earnings management after than before a restatement. The initiating party of the restatement showed that there have been some accounting errors in the financial statements in the past. In contrast with the expectations, we found that strong internal corporate governance of restating firms did not work more efficiently in preventing the existence of earnings management in the years after than before the announcement of an accounting restatement. Experiencing the announcement of a restatement does not influence the efficacy of strong internal corporate governance on earnings management. We indicated that strong internal corporate governance does not have a significantly positive influence on the non-existence of earnings management for non-restating firms.

The remainder of this paper is organized as follows. The next section gives a short overview of prior literature, and in section 3, we discuss the hypotheses development. In section 4 we report the model specification and variable measurement, followed by the sample selection and data collection in section 5. In section 6 we present the results of our analyses and finally we summarize the main findings of this research in section 7.

3.2 LITERATURE REVIEW

In the literature section, we will give an overview of two areas of literature. First we discuss prior literature concerning earnings quality, more specifically accrual quality. Second, we review prior literature that investigates market and accounting consequences in a long time window related to all stakeholders of the restating firm after the accounting restatement announcement. A discussion on the literature of earnings management and the importance/role of corporate governance can be found in the Hypotheses Development section.

3.2.1 Earnings quality – Working capital accruals

Earnings quantity gets a lot of attention during reporting, investors are focusing on the actual cents per share that are delivered. At first glance, when it comes to earnings, size matters most to investors. Savvy investors, however, take time to look at the quality of those earnings. The quality rather than quantity of corporate earnings is a much better gauge of future earnings performance (McClure (2002)).

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[58] Using a matched pair design in our model, exclude the fact that the difference in behaviour of corporate governance on earnings management is due to some market factors that affect the behaviour of both restating and non-restating companies.

Earnings quality is an important aspect of evaluating an entity's financial health. The quality of accruals, one aspect of earnings quality, refers to the fact that earnings that map more closely into cash are more desirable. Stakeholders are interested in a small level of accruals. When the absolute value of the abnormal working capital accruals is small, the earnings quality of financial statements is assessed to be high. Much prior literature (e.g., Dechow and Dichev (2002), Francis et al. (2005)) investigates accrual quality. The accrual quality is an accounting based measure, since only accounting information is used (Francis et al. (2004)).

3.2.2 Restatement literature on market and accounting consequences after the restatement announcement

Most prior literature investigating market and accounting consequences in a long time window after the restatement announcement uses a sample of only restating firms. On the one hand, there are studies which concentrate on consequences for the restating firm itself after the restatement announcement. Announcing a restatement can influence the earnings quality of a restating firm. Dechow et al. (1996) finds a gradual increase of accruals as the alleged year of earnings manipulation approaches, followed by a sharp decline. Moore and Pfeiffer (2004) find no evidence that restating firms have less aggressive financial reporting, as measured by total accruals, in the periods following a restatement announcement. They not only consider the change in financial reporting as a consequence of a restatement, but they compare the characteristics of the financial reporting before and after the restatements. Graham et al. (2006) investigates the impact of announcing a restatement on the cost of bank debt. They indicate an economically significant increase in the loan spread after the restatement announcement. Further, they find that bank loans contracted after the announcement of a restatement have significantly shorter maturity, higher likelihood of being secured, and more covenant restrictions, compared with loans initiated before the restatement announcement. Wilson (2006) provides evidence of another consequence for restating firms itself of the restatement announcement. She indicates that the earnings response coefficient exhibits a U-shaped pattern around the announcement of a restatement. The information content of earnings declines after the announcement of a restatement, but investors regain confidence in earnings within four quarters following the restatement announcement.

On the other hand, some prior literature investigates consequences for other parties besides the restating company itself after the announcement of a restatement. The results of Hribar et al. (2004) suggest that institutions in general reduce their holdings and decrease their portfolio weight in the restating firms after the announcement of a restatement. When splitting up the results according to the type of institution, they find that transient institutions, known for their shorter

investment horizon and higher portfolio turnover, significantly sell at least one quarter prior to the quarter of the announcement of the accounting restatement. Li and Zhang (2006) investigate insider trading activities surrounding the announcement of a restatement. They show net insider selling before the announcement of a restatement, little net insider selling immediately around the announcement, and net insider buying after the restatement announcement. Third, Collins et al. (2005) finds a positive association between executive turnover and the severity of the accounting restatement, while Hennes et al. (2007) finds an extremely high top management turnover rate for intentional GAAP violations. Burks (2007) also examines top management turnover. He finds an association between CEO turnover and restatements before SOX, and an association between CFO turnover and restatements after SOX. Further, Burks (2007) and Collins et al. (2005) report reductions in bonus compensation after an accounting restatement. Consistent with these results, Cheng and Farber (2006) find a significant decline in the proportion of CEOs' compensation in the form of options. Fourth, Srinivasan (2005) reports that directors, especially audit committee members, experience significant labor market penalties.

Second, prior literature, investigating consequences of an accounting restatement in a long time window, can also use a matched pair design. Efendi et al. (2005) reports a significantly positive difference in the short interest between restating firms and their matched control firms a year and a half before the announcement of the restatement. As the announcement approaches, the difference is increasing and finally peaks in the announcement month. After the announcement, the short interest of the restating firms stays at the same level and, consistent with the contagion effect, the level of short interest of the non-restating industry- and size-matched firms increases, too. Second, Desai et al. (2006) suggests that the board as well as the external labor market imposes penalties, such as management turnover, on the managers of firms that violate GAAP. They do not find a significant difference between the turnover rate of the firms that violate GAAP and size- and industry-matched control firms. Moreover, they find in their sample of GAAP violators that bankrupt firms exhibit a higher turnover than non-bankrupt firms.[59]

[59] Besides the market and accounting consequences after a restatement announcement in a long time window, prior literature also investigates the stock market reaction in a short time window after the restatement. Anderson and Yohn (2002), Palmrose, Richardson, and Scholz (2004), Hirschey, Palmrose, and Scholz (2003), Dowdell and Press (2004), Kedia (2003), Srinivasan (2005), van Praag and Rees (2002), Desai et al. (2006), Hribar and Jenkins (2006), Dechow et al. (1996) and Kinney and McDaniel (1989) report significantly negative cumulative abnormal returns of stock prices surrounding the announcement of an accounting problem.

3.3 HYPOTHESES DEVELOPMENT

Prior literature mainly focuses on the use of a sample of only restating firms (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)), while investigating market and accounting consequences in a long time window after the restatement announcement. We, on the other hand, use a matched pair design for the research whether the influence of strong internal governance on accruals differs between restating and non-restating firms during a period of seven years around the announcement of an accounting restatement.

The incumbent auditor and/or the company's management can be replaced after the announcement of an accounting restatement or they can stay on board and experience severe penalties after the restatement announcement.

Prior restatement literature (e.g., Desai et al. (2006), Hennes et al. (2007)) reports management turnover after the announcement of an accounting restatement. Desai et al. (2006) suggests that the board as well as the external labor market imposes penalties, such as management turnover, on the managers of firms that violate GAAP. Consistent, Hennes et al. (2007) finds an extremely high top management turnover rate for intentional GAAP violations.

Further, prior literature (e.g., Srinivasan (2005), Burks (2007)) focuses on the severe market penalties for the incumbent auditor and the company's management when both parties stay on board. Srinivasan (2005) documents that audit committee directors experience significant labor market penalties in the three years after the restatement. Palmrose et al. (2004) shows that a restatement creates a more litigious environment for the restating firm and for the auditor. Further, Burks (2007), Collins et al. (2005), and Cheng and Farber (2006) report a negative evolution in the compensation of management after an accounting restatement.

So, after announcing a restatement, the reputation and reliability of the firm's incumbent auditor and the reputation and reliability of the company's managers are very unstable, whether or not the incumbent auditor and/or the company's management are replaced.

If the auditor and the company's management stay on board after the restatement announcement, they have to reconsolidate their reputation, so we expect that these two parties will even try harder to install and promote good earnings quality when they are supervised by a dedicated board of directors or audit committee.[60,61] Since we expect a difference in the efficacy of

[60] The senior managers have a disincentive to commit earnings management when they are supervised by a dedicated board of directors; also auditors have a disincentive to permit earnings management when the audit committee monitors their work.

[61] The auditor and the company's management can also be replaced after the restatement announcement. The new auditor and the new company's management have no reputation problems concerning the firm's restatement, so we

corporate governance on earnings management before and after the restatement announcement, we distinguish for our first hypothesis between restating and non-restating companies. We expect that good earnings quality can be associated with low earnings management after the restatement announcement, this leads to the first hypothesis:

H1a: *The association between strong internal governance and earnings management will be more negative for companies who have recently announced a restatement in the years after the restatement announcement than in the years before the restatement announcement, ceteris paribus.*

H1b: *The influence of strong internal governance on earnings management will always be even effective for non-restating companies, ceteris paribus.*

Hypothesis 1b declares that we expect non-significance of the interaction terms between the time variables and the internal corporate governance variable for non-restating companies. When the interaction terms are not significant, we can assume that the main effect, namely the internal corporate governance variable, is valid for the seven years around the restatement announcement for non-restating companies.

Prior literature (e.g., Carcello et al. (2006), Bowen et al. (2004), Becker et al. (1998), Menon and Williams (2004), Klein (2002)) indicates a negative relation between strong internal corporate governance and earnings management. An important duty of the board of directors and the audit committee is to monitor and evaluate respectively the senior management's activities within the company and the work of any registered public accounting firm employed by the company. The senior managers have a disincentive to commit earnings management when they are supervised by a dedicated board of directors; also auditors have a disincentive to permit earnings management when the audit committee monitors their work. This leads to the second hypothesis:

H2: *The association between strong internal governance and earnings management will be negative for non-restating companies, ceteris paribus.*

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expect that these two parties will not behave differently whether there was or wasn't a restatement announcement in the past. Less than 20% of the restating companies in our sample replaced the auditor and/or management after the restatement announcement. We included a SWITCH variable in our model to control for the change in auditor and/or management.

3.4 MODEL SPECIFICATION AND VARIABLE MEASUREMENT

To test the two above hypotheses, we use the OLS estimation method. The dependent variable in our model is LNAAWCA, the natural logarithm of the absolute value of abnormal working capital accruals. We used the absolute value of abnormal working capital accruals, since we made no difference between income increasing and income decreasing earnings management.[62] We used the natural logarithm to adjust for large values of working capital accruals. The abnormal working capital accruals (AWCA), used in our estimation model, are calculated as follows, consistent with DeFond and Park (2001):

$$AWCA_t = WC_t - [(WC_{t-1}/S_{t-1}) * S_t]$$

Where t = current year; thus t-1 refers to the previous year; $AWCA_t$ = abnormal working capital accruals in the current year; WC_t = noncash working capital in the current year computed as (current assets – cash and short-term investments) – (current liabilities – short-term debt); WC_{t-1} = noncash working capital in the previous year; S_t = sales in the current year; S_{t-1} = sales in the previous year.

We focus on working capital accruals, because earnings management is likely accomplished via working capital accruals and not via depreciation accruals (Desai et al. (2004)). Further, Sloan (1996) suggests that working capital accruals are easier to manipulate for purposes of earnings management than depreciation accruals, since earnings management via depreciation accruals is likely to have limited potential because the effect of changes in asset lifes or in the depreciation method are required to be disclosed. Janin (2000) provides evidence of the importance of working capital accruals. Although depreciation and amortization explain the greatest part of total accruals, working capital accruals among all the total accruals components, exhibit the greatest variability.

We define the dependent variable consistent with the model of DeFond and Park (2001). We did not use the model of Jones (1991), since the sample is too small to get reliable industry-specific regression coefficients.

To test the hypotheses, an INTGOV variable is introduced in our model. We want to measure the internal governance of a firm using a single dummy variable (INTGOV). This variable combines seven corporate governance characteristics with respect to the Board of Directors and the Audit Committee (e.g. Bushman et al. (2004) combines several corporate governance characteristics into one single measure); the size of these seven corporate governance characteristics is not

[62] Consistent with prior research we use the absolute value of abnormal accruals to measure the combined effect of income-increasing and income-decreasing earnings management decisions (e.g. Becker et al. (1998), Warfield et al. (1995), Reynolds and Francis (2000), Francis et al. (1999)). In other words, all else equal, higher absolute value of

established by SOX, i.e. the size is voluntary, not mandatory. If strong corporate governance on multiple dimensions reflects a relatively stronger corporate governance of a firm, our summary measure will give a better indication of the overall internal corporate governance of a firm than the individual measures. The approach to construct the summary variable is consistent with DeFond et al. (2005) and Carcello et al. (2006). First, we create dichotomous variables of the seven corporate governance characteristics with respect to the Board of Directors and the Audit Committee; a value of one indicates strong governance:

Board size: Yermack (1996), Eisenberg et al. (1998), de Andres et al. (2005) and Mak et al. (2005) find a negative association between board size and firm value; this finding is consistent with a smaller board size indicating stronger corporate governance.[63] Abbott et al. (2004) indicates a higher incidence of a restatement when board size is larger. Therefore we code this corporate governance characteristic 1 if the firm's board size is smaller than the sample median, 0 otherwise.[64]

Board meetings: Frequent board meetings may be a signal of increased vigilance and oversight of the top management of the firm. Alternatively, the frequency of board meetings may increase in times of financial distress (e.g. Vafeas (1999), Gongmeng et al. (2006)). We code this corporate governance characteristic 1 if the number of board meetings is greater than the sample median, 0 otherwise.

CEO = chair of BoD: Dechow et al. (1996) investigates the weaknesses in internal governance structures of firms subject to enforcement actions by the SEC after manipulation of earnings. They find that these firms are more likely to have a CEO who simultaneously serves as Chairman of the Board. Sharma (2004) indicates a greater incidence of fraud when the chairperson of the BoD is the CEO. We code this corporate governance characteristic 1 if the CEO is not the same person as the chair of the Board of Directors, 0 otherwise.

Outside directors on Board: Outside (inside) directors are more independent (dependent) of a firm's CEO, but are potentially less (better) informed about projects than insiders (outsiders). Although this ambiguous view, most prior literature indicate that a higher proportion of outside directors is associated with stronger corporate governance (e.g. Weisbach (1988), Rosenstein and Wyatt (1990), Brickley et al. (1994), Dechow et al. (1996), Core et al. (1999), Klein (2002),

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abnormal accruals is consistent with a conclusion that auditors allow their clients to exercise greater accounting flexibility.

[63] Although Baber et al. (2005) finds that corporate governance indicators such as CEO-Chairman of the Board separation, and board size, fail to explain the propensity of a financial statement restatement.

[64] We work with two samples: one of the restating companies and one of the matched non-restating companies. The second sample is used for testing the robustness of the results.

Helland and Sykuta (2005)).[65] Beasley (1996) indicates that boards of fraud firms have significantly fewer outside members and more management directors than no-fraud firms. Dechow et al. (1996) finds that AAER firms are more likely to have boards of directors dominated by management. Farber (2005) documents that fraud firms have fewer numbers and percentages of outside board members than no-fraud firms. Following prior studies, we code this corporate governance characteristic 1 if 60% or more of the directors are independent, 0 otherwise.

Audit Committee size: The NYSE and NASDAQ follow the recommendations of the Blue Ribbon Committee (1999) and require their registrants to have a minimum of three directors on their audit committees, suggesting that larger audit committees provide stronger governance (see also Abbott et al. (2004)). Anderson, Mansi and Reeb (2004) find that bond yield spreads are negatively related to audit committee size. We code this corporate governance characteristic 1 if the proportion of the firm's audit committee size to its board size is greater than the sample median, 0 otherwise.

Audit Committee meetings: Farber (2005) finds that fraud firms have fewer audit committee meetings than no-fraud firms. Abbott et al. (2004) reports a negative association between the number of audit committee meetings and the incidence of a restatement. We code this corporate governance characteristic 1 if the number of audit committee meetings is greater than the sample median, 0 otherwise.

Average attendance rate at Board and committee meetings: Directors and committee members are paid for their attendance at a meeting. Fich et al. (2005) and Hansen (1997) find a positive relation between remuneration and respectively firm value and performance. Therefore, we code this corporate governance characteristic 1 if the average attendance rate at Board and committee meetings is greater than the sample median, 0 otherwise.

We define a firm as having strong internal governance if the summation of the seven corporate governance characteristics equals or exceeds the sample median for this summary variable. The internal corporate governance variable is remeasured every year during a period of seven years around the restatement announcement.

Second, we introduced interaction variables between the INTGOV variable and some indicator variables that control for the time period compared to the year of the announcement of the accounting restatement, year t, to test the first hypothesis (INTGOV*t-3, INTGOV*t-2, INTGOV*t-1, INTGOV*t1, INTGOV*t2, INTGOV*t3).[66,67] We expect that the relationship

[65] Hermalin and Weisbach (1998) document that adding insiders on the board may improve firm performance for some firms.
[66] Year t is the year the restatement is publicly announced as stated in the GAO report (2002).

between internal corporate governance and abnormal working capital accruals for companies that announced recently a restatement is even more negative in the years after the restatement announcement than in the years before the announcement.

The control variables included in the model are consistent with prior literature on earnings management (e.g. Carcello et al. (2006), Frankel et al. (2002), Larcker and Richardson (2004), Ashbaugh et al. (2003), Krishnan (2003), Bowen et al. (2004)). The control variables in this model are the natural logarithm of total assets (SIZE), the ratio of total liabilities over total assets (LEV), and an indicator variable that takes the value one if the firm has a Big 5 auditor, zero otherwise (BIG5). We also included MB, a firm's market-to-book value defined as its market value of equity divided by book value, to control for growth opportunities (and other things, such as an effective management). Finally we included a performance-related variable (PERF1), measured as cash flow from operations scaled by the beginning of the year total assets, and an indicator variable that takes the value one if the firm has a different external auditor and/or management than last year, and zero otherwise (SWITCH). We did not include any indicator variables to control for the fiscal year, since these variables, after inclusion in our model, are not significant and do not change the results.[68] Table 3.1 gives an overview of the definitions and the expected signs of the variables. The extreme values in our sample are winsorized at the 95th and the 5th percentile to control for outliers in the analyses.

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[67] t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise.

[68] Inclusion of both time period and fiscal year indicator variables emphasizes the uniqueness of each observation; for example: we have two observations of restating firms that take place one year after the restatement announcement, one in 2002 and one in 2003. The results of the model with inclusion of fiscal year indicator variables indicate that the level of the natural logarithm of the absolute value of working capital accruals is not significantly different for different fiscal years, ceteris paribus.

Table 3.1: Variable definitions, model specification and expected signs

	Definition	Expected sign
Dependent variable		
LNAAWCA	natural logarithm of absolute value of abnormal working capital accruals	
Independent variables		
Test variables		
INTGOV	1 if the firm has strong internal corporate governance, 0 otherwise	-
t-3	1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise	?
t-2	1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise	?
t-1	1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise	?
t1	1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise	?
t2	1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise	?
t3	1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise	?
Control variables		
SIZE	natural logarithm of total assets	?
LEV	total liabilities on total assets	+
BIG5	1 if the firm has a Big5 auditor, 0 otherwise	-
MB	market value of equity divided by book value	+
PERF1	cash flow from operations scaled by the beginning of the year total assets	-
SWITCH	1 if the firm has a different external auditor and/or management than last year, 0 otherwise	-

Given the stated hypotheses and the defined variables, the following regression model will be estimated for the restating and the non-restating companies separately:

$$LNAAWCA = \beta_0 + \beta_1\ INTGOV + \beta_2\ INTGOV*t\text{-}3 + \beta_3\ INTGOV*t\text{-}2 + \beta_4\ INTGOV*t\text{-}1 + \beta_5\ INTGOV*t1 + \beta_6\ INTGOV*t2 + \beta_7\ INTGOV*t3 + \beta_8\ SIZE + \beta_9\ LEV + \beta_{10}\ BIG5 + \beta_{11}\ MB + \beta_{12}\ PERF1 + \beta_{13}\ t\text{-}3 + \beta_{14}\ t\text{-}2 + \beta_{15}\ t\text{-}1 + \beta_{16}\ t1 + \beta_{17}\ t2 + \beta_{18}\ t3 + \varepsilon$$

3.5 SAMPLE AND DATA

3.5.1 Sample selection

Consistent with Farber (2005) we use a matched pair design. When we check changes in persistence and changes in the level and influence of corporate governance surrounding the announcement of a restatement, it is possible that the changes are associated with the industry. To

control for this possibility, we use a sample of restating firms and a sample of non-restating firms matched on industry (2-digit SIC code), on size (total assets) and on year in the year before the announcement of the accounting restatement. We use a matched pair design to get a second sample to test for robustness of the results. In many studies, such as in our study, where manual data collection is necessary, matched pair design is often used. First, we select restating companies. Second, we match these restating companies with a non-restating company in the year before the announcement of the accounting restatement.

3.5.1.1 Selection of restating firms

In selecting the restating sample (see Table 3.2), we made use of the GAO report (2002) which consists of 919 restatements in the U.S., reported between January 1, 1997, and June 30, 2002.[69] The GAO report (2002) includes company name, ticker symbol, market listing, date of announcement of restatement, shares outstanding, prompter of the restatement, and coded reason of the restatement.[70]

We select firms with an announcement of a restatement date in 2001 or 2002. We decided to limit ourselves to these two periods, consistent with the study of Cornil (2008b); we took the most recent restatements reported in the GAO database. In the GAO database there are 125 restatements in 2002 and 225 restatements in 2001. We delete 35 restating firms which were finance, insurance or real estate companies.[71] 20 restating firms are foreign and make a reconciliation to US GAAP on form 20-F. As a consequence they do not file any proxy statements, in which the corporate governance variables are listed. We decide to exclude 27 firms, as these firms are small businesses, who file form 10KSB instead of form 10-K and form DEF 14A.[72,73] From the remaining restating firms, 86 are deleted because they are acquired by another company, merged with another company, or delisted in the years following the announcement of a restatement, and 1 company is deleted because it went bankrupt in the years following the announcement of the restatement (these 87 companies stopped filing proxy statements and 10-Ks). 44 companies have missing values for forms 10-K and/or DEF 14A. These 44 restating firms are also excluded from our sample. This leaves us with a sample of 137 restatement firms, 71 firms in 2001 and 66 firms in 2002.

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[69] This database was created by the US General Accounting Office as required by the Sarbanes-Oxley Act. In GAO (2002) you can find details of the methodology used to create the database.

[70] The coded reason can be: acquisitions & mergers; cost or expense; in-process R&D; reclassification; related-party transactions; restructuring assets or inventory; revenue recognition; securities related; and other.

[71] Ashbaugh et al. (2003) and Carcello et al. (2006) exclude firms operating in the financial sector.
Financial institutions (SIC codes 6000-6999) require unique procedures to estimate discretionary accruals.

[72] 10KSB = Optional form for annual and transition reports of small business issuers under section 13 or 15(d)

[73] Form DEF 14A = proxy statements

Table 3.2: Sample selection

Sample selection
919 restating firms in GAO database
- 569 restating firms announce a restatement in 2000 or earlier
- 35 restating firms are finance, insurance or real estate companies
- 20 restating firms are foreign and make a reconciliation to US GAAP on form 20-F
- 27 restating firms are small businesses who file form 10KSB
- 87 restating firms are acquired by another company, merged with another company, delisted or went bankrupt in the years following the announcement of a restatement
- 44 restating firms have missing values
= 137 restating firms

3.5.1.2 Selection of control firms

To test the earnings quality models in our study, we matched the restating firms with non-restating firms on industry (2-digit SIC code), on size (total assets) and on year in the year before the restatement announcement. Our control sample is based on searching the Worldscope database of U.S. companies.

A limitation of a matched pair design is that it overstates the number of restating companies in our sample. The coefficient estimates of the explanatory variables are not affected by the unequal sampling rates if the two groups represent an independent variable in the model (e.g., Seetharaman et al. (2002), Desai et al. (2006)). Nevertheless, we have to assume that the omitted variables (which are represented in the error term) are not correlated with the matching variable RESTATE. The distribution of the sample firms (restating and control firms) by 2-digit SIC code is presented in Table 3.3.

3.5.2 Data collection

We collect the necessary data for each restatement firm and its matched firm for seven years, the three years before the restatement announcement, the year of the restatement announcement, and the three years after the restatement announcement.

To get the necessary data for the variables, we consult the Worldscope database. The corporate governance variables are manually collected from the 10-Ks and the proxy statements. For the firms with missing financial statement values in the Worldscope database, we check the

hardcopy versions of the financial statements, readily downloadable from the Securities and Exchange Commission (SEC) website.

Table 3.3: Sample companies per 2-digit industry grouping

2-digit SIC code	Industry	Number of companies
13	oil and gas extraction	6
14	nonmetallic minerals, except fuels	2
15	general building contractors	2
16	heavy construction, except building	2
20	food and kindred products	20
23	apparel and other textile products	2
26	paper and allied products	2
27	printing and publishing	4
28	chemicals and allied products	26
30	rubber and miscellaneous plastic products	6
32	stone, clay, and glass products	2
33	primary metal industries	4
34	fabricated metal products	2
35	industrial machinery and equipment	34
36	electronic and other equipment	18
38	instruments and related products	32
47	transportation services	2
48	communication	6
49	electric, gas, and sanitary services	20
50	wholesale trade - durable goods	6
51	wholesale trade - nondurable goods	6
53	general merchandise stores	8
54	food stores	2
55	automotive dealers and service stations	2
56	apparel and accessory stores	2
57	furniture and home furnishings stores	4
58	eating and drinking places	2
72	personal services	4
73	business services	32
79	amusement and recreation services	6
80	heath services	4
83	social services	2
87	engineering and management services	2
		274

3.6 RESULTS

3.6.1 Descriptive statistics and univariate analyses

Table 3.4 presents the descriptive statistics and the univariate tests of differences between restating and non-restating firms for some accounting and corporate governance characteristics.[74] The descriptive statistics and the univariate results of three, two and one year before the restatement announcement, the year of the restatement announcement, and one, two and three years after the restatement announcement are respectively reported in Panel A, Panel B, Panel C, Panel D, Panel E, Panel F, and Panel G of Table 3.4.

The results show that restating and non-restating firms do not much differ concerning the accounting characteristics LEV, MB, SIZE, and PERF1 during the seven year time window.

The univariate results indicate that the absolute value of working capital accruals does not significantly differ between restating and non-restating companies during each of the seven years around the announcement of a restatement.

For the internal corporate governance characteristics (board size, audit committee size on board size, percentage of outside directors on the board, average attendance rate at board and committee meetings, and number of board and audit committee meetings) we see some significant differences between restating and non-restating firms during the seven year time window. Results indicate that the audit committee size on the board size is significantly larger for restating firms than for non-restating firms in the third and the second year before the restatement announcement, but only at the 10% level, and no significant difference in any internal corporate governance characteristic between restating and non-restating firms in the first year before the restatement announcement. The audit committee size rather than the board size is driving these results. We notice that the number of board meetings and the number of audit committee meetings is larger for restating firms than for non-restating firms in the year of the restatement announcement and that only the number of audit committee meetings is larger for restating firms than for non-restating firms in the first year after the restatement announcement. Further, the results show that the percentage of outsiders on the board is significantly larger for restating firms than for non-restating firms in the first and the second year after the restatement announcement.

[74] For the univariate results, we make use of the non-parametric Wilcoxon test instead of the parametric t-test since the dependent variables are not normally distributed.

Table 3.4: Descriptive statistics and univariate test of differences between restating firms and non-restating firms

Panel A: 3 years before announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.3357642	8	6	10	8.0291971	7	6	9	0.5714
board meetings	6.3284672	6	4	7	7.0364964	6	5	9	0.156
audit committee size on board size	0.4343462	0.428571	0.333333	0.5	0.4064245	0.4	0.333333	0.5	0.0745*
audit committee meetings	2.7007299	3	2	4	2.6788321	2	2	3	0.6153
% outside directors on board	0.7804301	0.818182	0.714286	0.875	0.7737756	0.8	0.714286	0.857143	0.4381
average attendance rate at board and committee meetings	0.7787591	0.75	0.75	0.75	0.7860584	0.75	0.75	0.75	0.5094
LEV	0.5570047	0.531742	0.2657479	0.6750556	0.4972006	0.46083	0.2749604	0.6622958	0.5073
MB	1.7017277	1.977449	1.13579	3.970009	-0.7690678	2.191729	1.297923	5.336824	0.3321
SIZE	20.002534	19.88627	18.1669	21.913	19.928972	19.88829	18.3659	21.6987	0.8547
PERF1	-0.6040933	0.06972	-0.0136023	0.1285457	-0.0053855	0.0821	-0.0112301	0.1401773	0.452
AAWCA	99542.149	16288.05	3441.074	75520.837	8429.0501	8734.37	2311.05	72778.663	0.1891

Table 3.4 (*continued*)

Panel B: 2 years before announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.3211679	8	6	10	8.1313869	8	7	9	0.8116
board meetings	6.7153285	6	4	8	6.810219	6	5	8	0.5844
audit committee size on board size	0.450288	0.428571	0.333333	0.5	0.4196466	0.428571	0.333333	0.5	0.0697*
audit committee meetings	3.3722628	3	2	4	3.1751825	3	2	4	0.367
% outside directors on board	0.7959904	0.833333	0.75	0.888889	0.796602	0.833333	0.75	0.875	0.9519
average attendance rate at board and committee meetings	0.7782117	0.75	0.75	0.75	0.790073	0.75	0.75	0.75	0.5433
LEV	0.5208384	0.5031	0.31151	0.66668	0.4650428	0.433744	0.2501059	0.6661027	0.207
MB	2.5584399	2.034956	0.935399	3.82627	5.1696429	2.174743	1.187799	4.928853	0.244
SIZE	20.29567	20.08884	19	22	20.227882	20.19751	18.7317	21.7013	0.8938
PERF1	-0.0127415	0.06864	-0.0096017	0.13977	0.0055411	0.085994	0.0135562	0.1689173	0.2766
AAWCA	130259.08	17780.1	3528.71	67192.8	75539.615	16071.99	3840.933	73271.241	0.9921

Table 3.4 (*continued*)

Panel C: 1 year before announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.3211679	8	6	10	8.1605839	8	7	9	0.7271
board meetings	7.0437956	6	5	9	6.6861314	6	5	8	0.5601
audit committee size on board size	0.4513596	0.444444	0.375	0.5	0.4352349	0.428571	0.375	0.5	0.1852
audit committee meetings	4.379562	4	3	5	4.1240876	4	3	5	0.7811
% outside directors on board	0.8022641	0.833333	0.75	0.888889	0.7964849	0.833333	0.75	0.875	0.5803
average attendance rate at board and committee meetings	0.7759489	0.75	0.75	0.75	0.7882117	0.75	0.75	0.75	0.3998
LEV	0.5294733	0.524406	0.3343046	0.7162364	0.4845308	0.474756	0.22423	0.6624053	0.1044
MB	1.7510984	1.788721	0.947757	3.035804	3.7533557	2.090614	1.172739	4.075441	0.1308
SIZE	20.438581	20.19927	18.8854	22.3654	20.343954	20.31608	18.8441	21.82	0.873
PERF1	0.0070243	0.058785	0.0024154	0.1185926	0.0271455	0.084636	0.0117442	0.1308369	0.1774
AAWCA	165985.92	24216.4	6616.275	90729.672	85764.081	22468	4387.762	83877.521	0.3556

Table 3.4 (*continued*)

Panel D: year of announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.2408759	8	6	10	8.2189781	8	7	9	0.9083
board meetings	8.9051095	7	5	12	7.1240876	6	5	8	0.0205**
audit committee size on board size	0.4635955	0.454545	0.375	0.545455	0.4460788	0.428571	0.375	0.5	0.1665
audit committee meetings	7.4233577	6	4	9	5.2043796	5	4	6	0.0002**
% outside directors on board	0.8162436	0.833333	0.777778	0.888889	0.8015877	0.833333	0.75	0.875	0.2544
average attendance rate at board and committee meetings	0.7789051	0.75	0.75	0.75	0.790073	0.75	0.75	0.75	0.3351
LEV	0.5238396	0.52633	0.338887	0.7165651	0.4862697	0.480467	0.2572911	0.6777528	0.1539
MB	27.443043	1.57109	0.844298	2.657833	2.5874961	1.676898	1.172739	2.950887	0.1079
SIZE	20.412374	20.22802	18.8557	22.267	20.365562	20.29218	18.8928	21.896	0.9908
PERF1	0.0052298	0.06894	-0.0274878	0.1226654	0.0295715	0.069553	0.0047419	0.1301403	0.3748
AAWCA	192251.63	21989.4	5044.502	152543.4	94711.815	17747.7	5775.15	86368.5	0.3281

Table 3.4 (*continued*)

Panel E: 1 year after announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.3430657	8	7	10	8.2627737	8	7	10	0.7166
board meetings	8.6934307	7	5	10	7.1824818	6	5	8	0.1666
audit committee size on board size	0.4489002	0.428571	0.363636	0.5	0.4499158	0.428571	0.375	0.5	0.9688
audit committee meetings	8.1167883	7	5	10	6.6788321	6	4	8	0.0026**
% outside directors on board	0.8264615	0.857143	0.8	0.888889	0.8055578	0.833333	0.75	0.875	0.0847*
average attendance rate at board and committee meetings	0.7775474	0.75	0.75	0.75	0.785	0.75	0.75	0.75	0.564
LEV	0.5433209	0.542709	0.3501777	0.7320113	0.4689301	0.455141	0.2611201	0.6763206	0.0267**
MB	0.597895	1.485803	0.861816	2.739028	2.3475411	1.848917	1.205942	3.047121	0.0391**
SIZE	20.406483	20.31937	18.6599	22.2272	20.38544	20.414	18.8392	21.9422	0.9474
PERF1	0.0288251	0.05182	-0.0305375	0.1102463	0.0444205	0.077333	0.0214515	0.1264769	0.0590*
AAWCA	155406.2	18126.5	3358.62	77183.6	95678.622	17997.81	3797.98	55381.7	0.7997

Table 3.4 (*continued*)

Panel F: 2 years after announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.5328467	9	7	10	8.2627737	8	7	9	0.3011
board meetings	8.1240876	7	5	9	7.3868613	7	5	9	0.5902
audit committee size on board size	0.4414576	0.428571	0.363636	0.5	0.4494474	0.428571	0.375	0.5	0.722
audit committee meetings	8.0291971	8	5	10	7.810219	7	5	10	0.6916
% outside directors on board	0.8359372	0.875	0.8	0.888889	0.8159542	0.857143	0.769231	0.888889	0.0348**
average attendance rate at board and committee meetings	0.7780292	0.75	0.75	0.75	0.785438	0.75	0.75	0.75	0.4382
LEV	0.5412061	0.521649	0.3292158	0.7078332	0.4791781	0.450472	0.270719	0.6607828	0.0511*
MB	2.9743839	2.076653	1.262996	3.230979	2.8074364	2.220122	1.453825	3.462406	0.4697
SIZE	20.458282	20.29968	18.6933	22.3051	20.471672	20.41463	18.993	22.0939	0.8445
PERF1	0.0062924	0.05707	-0.0228442	0.1279393	0.0538983	0.071469	0.0199398	0.1327574	0.109
AAWCA	240473.17	16720.4	3366.68	93517.4	67285.033	13950.29	2984.91	65486.412	0.245

Table 3.4 (*continued*)

Panel G: 3 years after announcement

	restating firms				non-restating firms				
	mean	median	1st quarter	3rd quarter	mean	median	1st quarter	3rd quarter	Wilcoxon two-sample test†
board size	8.4379562	8	7	10	8.4525547	8	7	10	0.9258
board meetings	8.4379562	7	6	10	7.7153285	7	6	9	0.3094
audit committee size on board size	0.4426623	0.428571	0.363636	0.5	0.4459724	0.428571	0.363636	0.5	0.856
audit committee meetings	8.7372263	8	6	11	8.3357664	8	6	10	0.6274
% outside directors on board	0.8221614	0.857143	0.777778	0.888889	0.8049291	0.833333	0.75	0.888889	0.1254
average attendance rate at board and committee meetings	0.7810219	0.75	0.75	0.75	0.78	0.75	0.75	0.75	0.8562
LEV	0.5438745	0.510758	0.372456	0.715252	0.4814413	0.488217	0.2768848	0.6789818	0.0937*
MB	2.3051123	2.030736	1.248568	3.244827	2.7456114	2.180488	1.472286	3.446396	0.106
SIZE	20.512362	20.4103	18.785	22.3522	20.528354	20.50731	19.1452	22.0338	0.8086
PERF1	0.0355544	0.06673	0	0.1226384	0.0617318	0.092986	0.0178449	0.1475055	0.103
AAWCA	127790.43	16585.6	2911.065	87892.523	86641.836	16492.54	4861.664	55800.771	0.8124

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)
† non-parametric Wilcoxon tests are used instead of parametric t-tests since the dependent variables are not normally distributed

Where LEV = total liabilities on total assets; MB = market value of equity divided by book value; SIZE = natural logarithm of total assets; PERF1 = cash flow from operations scaled by the beginning of the year total assets; AAWCA = absolute value of abnormal working capital accruals;

To conclude, the internal corporate governance as a whole is better for restating firms than for non-restating firms during the seven years around the restatement announcement, especially during the year of and the first and the second year after the restatement announcement. In the third year after the restatement announcement there is no significant difference between restating and non-restating firms concerning the internal corporate governance characteristics.

3.6.2 Multivariate analyses

To test if the influence of strong internal corporate governance on earnings management differs between restating and non-restating firms, we use an OLS regression.

In this case the residuals are not independent and identically distributed, but are correlated across observations within one firm. We correct for the observed correlation between the residuals by adjusting the standard errors for correlation within a cluster by using Rogers' corrected estimates for standard errors (Rogers (1993)). Without the correction, the OLS standard errors are biased downward and the magnitude of this bias is increasing in the magnitude of the firm effect, thus we use an OLS regression with Rogers' corrected estimates for standard errors.

We test if there are any multicollinearity problems between the independent variables. We calculate the correlation matrix for the seven years around the restatement announcement (see Appendix 3.A) and the VIF factors; no multicollinearity was detected.

To test the two hypotheses, we pooled the data for seven years for the restating and the non-restating companies separately. We did not pool the sample of the restating and the non-restating firms to avoid 3-way interaction terms. When estimating an n-way interaction, all the simple terms and all possible interactions of lower than n order must be included; leaving out the simple terms and all possible interaction of lower than n order could cause serious correlated omitted variables bias. Some 2-way interaction terms are difficult to interpret when the two samples (both restating and non-restating) are pooled.

The results of the multivariate analyses are presented in Table 3.5 Panel A and Panel B, respectively. The first model we estimate serves as a baseline model and does not include the test variables. This model is based on prior earnings management studies. Model 2 represents the OLS regression with Rogers' corrected estimates for standard errors on the full model and tests the two hypotheses.

The baseline model, model 1, in Panel A and Panel B is significant: the p-value of the F-statistic is <.0001 and the adjusted R^2 is 58.12% and 48.90% respectively, which indicates a good

explanatory power. Some of the control variables are significant. The coefficients of these variables are significant in the expected direction.

The second model in Panel A and Panel B of Table 3.5 is significant over the seven years; the adjusted R^2 for the restating and the non-restating companies is respectively 59.05% and 49.62% (the inclusion of the test variables adds little extra explanatory power).

The two-way interaction terms in the second model of Panel A and Panel B of Table 3.5 indicate whether the influence of strong internal corporate governance on earnings management is better or worse in the three years before or the three years after the restatement announcement than in the year of the restatement announcement for restating and non-restating companies respectively. Results show that none interaction term for the restating and the non-restating companies is significant. We notice that the efficacy of strong internal governance does not improve after the restatement announcement for restating firms, although expected. This is in contrast with hypothesis 1a. Consistent with hypothesis 1b, we find no significant interaction terms for the non-restating sample.

The variable INTGOV is in Panel A as well as in Panel B insignificant. Since the interaction effects in both models are insignificant, we can conclude that the internal corporate governance has no influence on the existing of earnings management for both restating and non-restating firms in the seven years around the restatement announcement.[75] We expected that strong internal corporate governance would have a positive influence on the non-existence of earnings management for non-restating companies. This finding is in contrast with hypothesis 2.

We notice that the natural logarithm of abnormal working capital accruals of restating firms is significantly lower in the second year before the announcement, and in the second and the third year after the announcement than in the year of the restatement announcement (t-2, p=0.0434; t2, p=0.0918; t3, p=0.0042). We report almost no variation in the natural logarithm of abnormal working capital accruals of non-restating firms.

To conclude, we find that the efficacy of strong internal governance on earnings management is not significantly better or worse in the years before or after the restatement announcement compared to the year of the restatement announcement for restating companies. We report that the influence of strong internal corporate governance on earnings management is not significantly negative for non-restating firms during a seven year time window around the restatement announcement.

[75] As the interaction effects are not significant, the main INTGOV variable counts for each year before and after the restatement announcement.

Table 3.5: OLS over 7 years

Panel A: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-8.1391478	<.0001** (-11.61)	-8.6819185	<.0001** (-11.28)
INTGOV	-			-0.2122052	0.3956 (-0.85)
INTGOV *t-3	?			0.0625101	0.9149 (0.11)
INTGOV*t-2	?			0.3381831	0.4022 (0.84)
INTGOV*t-1	?			0.3322837	0.4018 (0.84)
INTGOV*t1	?			0.0245267	0.9405 (0.07)
INTGOV*t2	?			0.4966709	0.2188 (1.24)
INTGOV*t3	?			0.8789124	0.1705 (1.37)
SIZE	?	0.8594593	<.0001** (19.49)	0.8809683	<.0001** (19.66)
LEV	+	0.7636084	0.0590* (1.91)	0.6960314	0.0662* (1.85)
BIG5	-	0.1237058	0.7512 (0.32)	0.0949654	0.7975 (0.26)
MB	+	0.0457284	0.0944* (1.68)	0.0462867	0.0820* (1.75)
PERF1	-	-0.7112873	0.0676* (-1.84)	-0.8531823	0.0326** (-2.16)
SWITCH	-	0.1427793	0.4607 (0.74)	0.1594039	0.4229 (0.80)
t-3	?	-0.3152085	0.1108 (-1.61)	-0.3790502	0.4193 (-0.81)
t-2	?	-0.4552814	0.0122** (-2.54)	-0.5828479	0.0434** (-2.04)
t-1	?	-0.1061246	0.5132 (-0.66)	-0.2270075	0.4436 (-0.77)
t1	?	-0.3064378	0.0207** (-2.34)	-0.2837894	0.2466 (-1.16)
t2	?	-0.2969834	0.1222 (-1.56)	-0.5704839	0.0918* (-1.70)
t3	?	-0.6461573	0.0003** (-3.69)	-1.0914897	0.0042** (-2.91)
model adjusted R^2		0.5812		0.5905	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.5 (*continued*)

Panel B: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.3282175	<.0001**	-7.0492772	<.0001**
			(-6.59)		(-6.91)
INTGOV	-			0.5980946	0.1842
					(1.33)
INTGOV *t-3	?			0.1876557	0.6853
					(0.41)
INTGOV*t-2	?			-0.6113613	0.1949
					(-1.30)
INTGOV*t-1	?			-0.7311596	0.1717
					(-1.37)
INTGOV*t1	?			-0.5037028	0.128
					(-1.53)
INTGOV*t2	?			0.1107009	0.7611
					(0.30)
INTGOV*t3	?			-0.1416884	0.7371
					(-0.34)
SIZE	?	0.7748427	<.0001**	0.7935146	<.0001**
			(14.64)		(15.09)
LEV	+	0.7480721	0.0306**	0.7191797	0.0334**
			(2.19)		(2.15)
BIG5	-	-0.0403813	0.8593	-0.0272036	0.9033
			(-0.18)		(-0.12)
MB	+	-0.000607	0.9832	-0.0055527	0.8391
			(-0.02)		(-0.20)
PERF1	-	-0.2112523	0.7022	-0.2318287	0.6686
			(-0.38)		(-0.43)
SWITCH	-	0.0108753	0.9551	-0.0291313	0.8807
			(0.06)		(-0.15)
t-3	?	-0.3589053	0.0678*	-0.4147471	0.2214
			(-1.84)		(-1.23)
t-2	?	-0.0881251	0.5913	0.283001	0.2774
			(-0.54)		(1.09)
t-1	?	-0.0888259	0.5703	0.3444762	0.0859*
			(-0.57)		(1.73)
t1	?	-0.1623261	0.2633	0.1388476	0.5369
			(-1.12)		(0.62)
t2	?	-0.4724647	0.0060**	-0.4673909	0.1076
			(-2.79)		(-1.62)
t3	?	-0.2692926	0.144	-0.1627703	0.6079
			(-1.47)		(-0.51)
model adjused R^2		0.489		0.4962	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; INTGOV = 1 if the firm has strong internal governance, 0 otherwise; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.6.3 Sensitivity checks

We also perform some sensitivity checks that address the following issues: alternative definitions for the dependent variable and for several independent variables, an alternative definition for the time variables, the use of six internal corporate governance characteristics separately, measured as indicator variables and measured on a continuous scale, instead of one global internal governance measure, INTGOV, income-increasing working capital accruals versus income-decreasing working capital accruals, and restating firms with core-item problems versus restating firms with non-core item problems.

3.6.3.1 Dependent variable

In the multivariate analyses we focus on working capital accruals, but in the sensitivity checks we will use the natural logarithm of the absolute value of depreciation accruals (LNABSDACC) as dependent variable in our model. We define the dependent variable consistent with the model of DeAngelo (1986).

The measurement method of the dependent variable has little influence on the results. The adjusted R^2 of the two models, represented in Table 3.6 Panel A and Panel B for restating and non-restating firms respectively, is 16.91% and 7.698%. In general, we find that the efficacy of strong internal governance on earnings management for restating firms is not significantly better or worse in the years before or after the restatement announcement compared to the year of the restatement announcement for restating companies. We report that the influence of strong internal corporate governance on earnings management is not significantly negative for non-restating firms during a seven year time window around the restatement announcement.

Table 3.6: Sensitivity checks – other dependent variable

Panel A: Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		4.9151737	<.0001**
			(6.28)
INTGOV	-	0.7339261	0.4638
			(0.73)
INTGOV *t-3	?	-0.4321603	0.4242
			(-0.80)
INTGOV*t-2	?	-0.9984022	0.0175**
			(-2.41)
INTGOV*t-1	?	-0.1363063	0.7182
			(-0.36)
INTGOV*t1	?	-0.7068456	0.127
			(-1.53)
INTGOV*t2	?	-0.5282326	0.1511
			(-1.44)
INTGOV*t3	?	-0.3524735	0.3645
			(-0.91)
SIZE	?	0.0874094	0.0362**
			(2.12)
LEV	+	-0.3460677	0.2996
			(-1.04)
BIG5	-	-0.0766197	0.7397
			(-0.33)
MB	+	0.0850793	0.0017**
			(3.21)
PERF1	-	-2.3976737	<.0001**
			(-6.00)
SWITCH	-	-0.0079044	0.9701
			(-0.04)
t-3	?	0.0774603	0.8767
			(0.16)
t-2	?	0.6476682	0.0418**
			(2.06)
t-1	?	0.0863846	0.7797
			(0.28)
t1	?	0.0788876	0.7585
			(0.31)
t2	?	-0.009314	0.9756
			(-0.03)
t3	?	0.0660722	0.8396
			(0.20)
model adjusted R^2		0.1691	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

Table 3.6 (*continued*)

Panel B: Non-Restaters

	model 1		
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		4.2993445	0.0003**
			(3.73)
INTGOV	-	0.5204935	0.1491
			(1.44)
INTGOV *t-3	?	0.853724	0.0407**
			(2.07)
INTGOV*t-2	?	-0.5561542	0.1766
			(-1.36)
INTGOV*t-1	?	-0.0783711	0.8135
			(-0.24)
INTGOV*t1	?	-0.0960455	0.7853
			(-0.27)
INTGOV*t2	?	-0.2141885	0.569
			(-0.57)
INTGOV*t3	?	-0.4106947	0.2891
			(-1.06)
SIZE	?	-0.0183691	0.7705
			(-0.29)
LEV	+	1.0598671	0.0016**
			(3.22)
BIG5	-	-0.3707695	0.1508
			(-1.45)
MB	+	-0.0061254	0.8272
			(-0.22)
PERF1	-	-1.2420623	0.0027**
			(-3.06)
SWITCH	-	-0.1421601	0.4468
			(-0.76)
t-3	?	0.3178313	0.3107
			(1.02)
t-2	?	0.3940954	0.2362
			(1.19)
t-1	?	0.3446291	0.1941
			(1.31)
t1	?	0.0481919	0.8531
			(0.19)
t2	?	-0.0434877	0.8661
			(-0.17)
t3	?	0.0527183	0.8528
			(0.19)
model adjusted R^2		0.07698	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNABSDACC = natural logarithm absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); INTGOV = 1 if the firm has strong internal governance, 0 otherwise; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2

years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.6.3.2 Independent variable

First, we replace the control variable SIZE, the natural logarithm of total assets, by SIZE2, the natural logarithm of market capitalization. Both variables give an indication of magnitude of the company. The results are presented in Table 3.7 Panel A model 1 and Panel B model 1 for restating and non-restating firms respectively.

Second, we replace the performance measure PERF1, cash flow from operations scaled by the beginning of the year total assets, by PERF2, an indicator variable equal to 1 if the observed firm has a negative net income, 0 otherwise. The results are reported in Table 3.7 Panel A model 2 and Panel B model 2 for restating and non-restating firms respectively.

The results of both models are comparable to the results of the model with the independent variables SIZE and PERF1. We find that in general for restating firms the efficacy of strong internal governance does not improve in the years after the restatement announcement for restating firms and that the influence of strong internal corporate governance on earnings management is not significant for non-restating companies.

3.6.3.3 Time variable

We replace the time variables t-3, t-2, t-1, t1, t2, t3, by one single time variable tRESTATE, an indicator variable equal to 1 if the variables (restating companies + matched sample) consider the year of the restatement announcement or 1, 2, 3 years after the restatement announcement, 0 otherwise. The results are reported in Table 3.8 Panel A and Panel B for restating and non-restating firms respectively.

The results with the one single time variable are comparable to the results with the multiple time variables. We notice that strong internal governance is not significantly more efficient after than before the restatement announcement for restating companies (INTGOV*tRESTATE, p=0.4008). The influence of strong internal corporate governance on earnings management is insignificant for non-restating firms (INTGOV, p=0.1912).

We notice that the natural logarithm of abnormal working capital accruals of restating firms is not significantly lower after than before the accounting restatement (tRESTATE, restating: p=0.3932). This finding is consistent with Moore and Pfeiffer (2004), who find no evidence that

restating firms have less aggressive financial reporting, as measured by total accruals, in the periods following a restatement announcement.

Table 3.7: Sensitivity checks – other independent variable

Panel A: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.8982985	<.0001**	-8.7689037	<.0001**
			(4.18)		(-11.28)
INTGOV	-	-0.0900016	0.7359	-0.2106864	0.3863
			(-0.34)		(-0.87)
INTGOV *t-3	?	0.2584544	0.6586	0.0540298	0.9258
			(0.44)		(0.09)
INTGOV*t-2	?	0.5082958	0.219	0.2921291	0.4641
			(1.24)		(0.73)
INTGOV*t-1	?	0.5234965	0.1835	0.357941	0.3546
			(1.34)		(0.93)
INTGOV*t1	?	0.0641455	0.8491	0.0039794	0.9902
			(0.19)		(0.01)
INTGOV*t2	?	0.6597969	0.1132	0.4791307	0.2331
			(1.59)		(1.20)
INTGOV*t3	?	0.761904	0.1086	0.8608404	0.181
			(1.62)		(1.34)
SIZE2 / SIZE	?	0.7556105	<.0001**	0.8924726	<.0001**
			(7.81)		(19.54)
LEV	+	3.1168418	<.0001**	0.6830635	0.0787*
			(7.18)		(1.77)
BIG5	-	0.432997	0.3045	0.0341524	0.9249
			(1.03)		(0.09)
MB	+	0.0526728	0.0790*	0.0447447	0.0772*
			(1.77)		(1.78)
PERF1 / PERF2	- / +	-0.8103231	0.0739*	0.1847624	0.3086
			(-1.80)		(1.02)
SWITCH	-	0.0891494	0.6646	0.1522614	0.4359
			(0.43)		(0.78)
t-3	?	-0.5144566	0.2574	-0.3912507	0.4119
			(-1.14)		(-0.82)
t-2	?	-0.6830204	0.0222**	-0.5573196	0.0493**
			(-2.31)		(-1.98)
t-1	?	-0.281322	0.3634	-0.240691	0.4006
			(-0.91)		(-0.84)
t1	?	-0.3421345	0.1631	-0.2555513	0.2972
			(-1.40)		(-1.05)
t2	?	-0.6797452	0.0507*	-0.570653	0.0927*
			(-1.97)		(-1.69)
t3	?	-1.1526569	0.0042**	-1.0867562	0.0045**
			(-2.92)		(-2.89)
model adjusted R^2		0.5599		0.5866	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.7 (*continued*)

Panel B: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-7.0476362	<.0001**	-7.5038515	<.0001**
			(-7.01)		(-7.31)
INTGOV	-	0.6151216	0.2482	0.5586337	0.1274
			(1.16)		(1.53)
INTGOV *t-3	?	0.0354101	0.9406	0.2217995	0.6308
			(0.07)		(0.48)
INTGOV*t-2	?	-0.5902094	0.2643	-0.5671076	0.102
			(-1.12)		(-1.65)
INTGOV*t-1	?	-0.6709043	0.2489	-0.7364537	0.1528
			(-1.15)		(-1.43)
INTGOV*t1	?	-0.5986435	0.3369	-0.4748418	0.154
			(-0.96)		(-1.43)
INTGOV*t2	?	0.0662937	0.8554	0.1689915	0.6428
			(0.18)		(0.46)
INTGOV*t3	?	-0.1959593	0.6446	-0.0982823	0.8165
			(-0.46)		(-0.23)
SIZE2 / SIZE	?	0.7831026	<.0001**	0.8173858	<.0001**
			(15.13)		(14.95)
LEV	+	2.2763473	<.0001**	0.6732167	0.0416**
			(6.05)		(2.06)
BIG5	-	-0.0436307	0.8449	-0.1106883	0.6297
			(-0.20)		(-0.48)
MB	+	0.0152218	0.5976	-0.001871	0.947
			(0.53)		(-0.07)
PERF1 / PERF2	- / +	-0.2048307	0.7021	0.2295725	0.2216
			(-0.38)		(1.23)
SWITCH	-	-0.0979289	0.6309	-0.0333574	0.8625
			(-0.48)		(-0.17)
t-3	?	-0.346293	0.3099	-0.4055774	0.2346
			(-1.02)		(-1.19)
t-2	?	0.2721387	0.3145	0.2808537	0.2966
			(1.01)		(1.05)
t-1	?	0.3193416	0.1227	0.3467062	0.0808*
			(1.55)		(1.76)
t1	?	0.1795344	0.4345	0.1284162	0.5674
			(0.78)		(0.57)
t2	?	-0.4414168	0.1344	-0.4665726	0.108
			(-1.51)		(-1.62)
t3	?	-0.1251216	0.6961	-0.1494721	0.6408
			(-0.39)		(-0.47)
model adjusted R^2		0.4879		0.4978	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; INTGOV = 1 if the firm has strong internal governance, 0 otherwise; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 =

1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; SIZE2 = natural logarithm of market capitalization; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; PERF2 = 1 if the observed firm has a negative net income, 0 otherwise; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

Table 3.8: Sensitivity checks – other time variable

Panel A: Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-9.0628692	<.0001**
			(-11.29)
INTGOV	-	-0.4329221	0.0584*
			(-1.91)
INTGOV *tRESTATE	?	0.2005314	0.4008
			(0.84)
SIZE	?	0.8814752	<.0001**
			(20.22)
LEV	+	0.6848446	0.0702*
			(1.83)
BIG5	-	0.0817767	0.8236
			(0.22)
MB	+	0.0407931	0.117
			(1.58)
PERF1	-	-0.8290904	0.0378**
			(-2.10)
SWITCH	-	0.1889248	0.3235
			(0.99)
tRESTATE	?	-0.148712	0.3932
			(-0.86)
model adjusted R^2		0.5875	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

Table 3.8 (*continued*)

Panel B: Non-Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-7.1454659	<.0001**
			(-7.23)
INTGOV	-	0.2200729	0.1912
			(1.31)
INTGOV *tRESTATE	?	0.2766958	0.2335
			(1.20)
SIZE	?	0.8033735	<.0001**
			(15.41)
LEV	+	0.7196134	0.0332**
			(2.15)
BIG5	-	-0.0589412	0.7956
			(-0.26)
MB	+	-0.0076688	0.7793
			'(-0.28)
PERF1	-	-0.2141383	0.6949
			(-0.39)
SWITCH	-	-0.0173143	0.9276
			(-0.09)
tRESTATE	?	-0.216307	0.235
			(-1.19)
model adjusted R^2		0.4933	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; INTGOV = 1 if the firm has strong internal governance, 0 otherwise; tRESTATE = 1 if the variables (restating companies + matched sample) consider the year of the restatement or 1, 2, 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.6.3.4 Corporate governance characteristics separately

We make use of six internal corporate governance characteristics separately, measured as indicator variables and measured on a continuous scale, instead of one global internal governance measure, INTGOV. The results of the use of CG1, an indicator variable equal to 1 if the firm's board size is smaller than the sample median, 0 otherwise and BSIZE, the board size measured on a continuous scale, CG2, an indicator variable equal to 1 if the number of board meetings is greater than the sample median, 0 otherwise and BMEET, the number of board meetings measured on a continuous scale, CG3, an indicator variable equal to 1 if the CEO is not the same person as the chair of the Board of Directors, 0 otherwise, CG4, an indicator variable equal to 1 if 60% or more of

the directors is independent, 0 otherwise and POUTSIDE, the percentage of independent directors measured on a continuous scale, CG5, an indicator variable equal to 1 if the proportion of the firm's audit committee size to its board size is greater than the sample median, 0 otherwise and PACSIZE, the proportion of the firm's audit committee size to its board size measured on a continuous scale, and CG6, an indicator variable equal to 1 if the number of audit committee meetings is greater than the sample median, 0 otherwise and ACMEET, the number of audit committee meetings measured on a continuous scale, are presented in Table 3.9.[76]

When looking at the results, we notice that the fact that the CEO is not the same person as the chair of the Board of Directors works less efficiently on the non-existence of earnings management in the first year before the restatement announcement than in the year of the restatement announcement for restating firms (CG3*t-1, p=0.0173), it seems that a larger number of outside directors works more efficiently on the non-existence of earnings management in the second year after the restatement announcement than in the year of the restatement announcement for restating firms (POUTSIDE*t2, p=0.0982), and that a larger proportion of audit committee size on board size works less efficiently on the non-existence of earnings management in the second year before the restatement announcement than in the year of the restatement announcement for restating firms (CG5*t-2, p=0.0416; PACSIZE*t-2, p=0.0590). Further, a larger number of audit committee meetings eliminates more efficiently the earnings management in the year after the restatement announcement than in the year of the announcement of the accounting restatement (ACMEET*t1, p=0.0257). Since some of the corporate governance characteristics separately are significant, we can conclude that the at least some aspects of the internal corporate governance variable used in our research are relevant. The corporate governance characteristics separately, measured as indicator variables and measured on a continuous scale, are also insignificant for non-restating companies.

[76] We did not included the seventh internal corporate governance variable, average attendance rate at board and committee meetings, separately in our model, since the univariate results indicated little variation in this variable during the seven years around the restatement announcement for both restating and non-restating companies (median = first quarter = third quarter).

Table 3.9: Sensitivity checks – corporate governance characteristics separately

Panel A.1: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-9.7185424	<.0001** (-11.87)	-9.2227918	<.0001** (-12.26)
CG1 / BSIZE	-	-0.2360194	0.2734 (-1.10)	0.0894273	0.1027 (1.63)
CG1/BSIZE *t-3	?	0.3394463	0.3879 (0.87)	-0.0208546	0.7371 (-0.34)
CG1/BSIZE *t-2	?	0.4357934	0.1959 (1.30)	-0.0968852	0.1175 (-1.58)
CG1/BSIZE *t-1	?	0.2773087	0.3678 (0.90)	-0.0271478	0.6468 (-0.46)
CG1/BSIZE *t1	?	0.2878846	0.2681 (1.11)	-0.0391779	0.3978 (-0.85)
CG1BSIZE *t2	?	0.1999994	0.6094 (0.51)	0.028798	0.7021 (0.38)
CG1/BSIZE *t3	?	0.5247651	0.1918 (1.31)	-0.0735139	0.2698 (-1.11)
SIZE	?	0.9289122	<.0001** (20.57)	0.9420075	<.0001** (22.68)
LEV	+	0.78987279	0.0479** (2.00)	0.9083603	0.0278** (2.22)
BIG5	-	0.1379053	0.7206 (0.36)	0.1592015	0.6805 (0.41)
MB	+	0.0482042	0.0714* (1.82)	0.0571845	0.0317** (2.17)
PERF1	-	-0.7634854	0.0519* (-1.96)	-0.7853655	0.0489** (-1.99)
SWITCH	-	0.1555852	0.4293 (0.79)	0.1822541	0.3457 (0.95)
t-3	?	-0.5099484	0.0449** (-2.03)	-0.1044772	0.8665 (-0.17)
t-2	?	-0.6991569	0.0012 (-3.32)	0.3703666	0.5267 (0.63)
t-1	?	-0.2746636	0.1517 (-1.44)	0.1230884	0.8253 (0.22)
t1	?	-0.4547771	0.0172** (-2.41)	0.0263316	0.9486 (0.06)
t2	?	-0.4898875	0.122 (-1.56)	-0.5256216	0.4582 (-0.74)
t3	?	-0.931889	0.0010** (-3.38)	-0.024034	0.9675 (-0.04)
model adjustedd R^2		0.5855		0.589	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel A.2: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-8.1724687	<.0001**	-8.4596276	<.0001**
			(-11.41)		(-11.59)
CG2 / BMEET	-	0.4391871	0.1654	0.0424355	0.2094
			(1.39)		(1.26)
CG2/BMEET*t-3	?	-0.5388147	0.1843	-0.0298806	0.5562
			(-1.33)		(-0.59)
CG2/BMEET *t-2	?	-0.661401	0.0711*	-0.1004074	0.1457
			(-1.82)		(-1.46)
CG2/BMEET *t-1	?	-0.0211626	0.9479	0.0076049	0.8112
			(-0.07)		(0.24)
CG2/BMEET *t1	?	0.0857369	0.769	-0.0056269	0.8388
			(0.29)		(-0.20)
CG2/BMEET *t2	?	0.4511929	0.2385	0.0401816	0.2201
			(1.18)		(1.23)
CG2/BMEET *t3	?	0.1760106	0.6468	0.0307664	0.4671
			(0.46)		(0.73)
SIZE	?	0.8520759	<.0001**	0.8592043	<.0001**
			(18.74)		(18.99)
LEV	+	0.7004311	0.0679*	0.6357192	0.0876*
			(1.84)		(1.72)
BIG5	-	0.0706012	0.8492	0.1435417	0.6978
			(0.19)		(0.39)
MB	+	0.0449998	0.1114	0.0464874	0.0859*
			(1.60)		(1.73)
PERF1	-	-0.8501898	0.0363**	-0.8220152	0.0510*
			(-2.11)		(-1.97)
SWITCH	-	0.1810593	0.3517	0.1220822	0.5216
			(0.93)		(0.64)
t-3	?	-0.0004103	0.9989	-0.0250015	0.9497
			(-0.00)		(-0.06)
t-2	?	-0.0772481	0.7374	0.3021084	0.4969
			(-0.34)		(0.68)
t-1	?	-0.106611	0.5934	-0.0847338	0.753
			(-0.54)		(-0.32)
t1	?	-0.3290899	0.1079	-0.2517284	0.3526
			(-1.62)		(-0.93)
t2	?	-0.5381481	0.0970*	-0.5859655	0.1373
			(-1.67)		(-1.50)
t3	?	-0.7639075	0.0143**	-0.8954217	0.0294**
			(-2.48)		(-2.20)
model adjusted R^2		0.5876		0.5861	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel A.3: Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-8.098784	<.0001**
			(-11.30)
CG3	-	-0.1109361	0.6336
			(-0.48)
CG3*t-3	?	-0.3369447	0.4429
			(-0.77)
CG3*t-2	?	0.550467	0.1066
			(1.62)
CG3*t-1	?	0.7217417	0.0173**
			(2.41)
CG3*t1	?	-0.0865427	0.7709
			(-0.29)
CG3*t2	?	-0.4160595	0.2577
			(-1.14)
CG3*t3	?	0.5713391	0.1123
			(1.60)
SIZE	?	0.860729	<.0001**
			(19.58)
LEV	+	0.7418337	0.0767*
			(1.78)
BIG5	-	0.1129143	0.7732
			(0.29)
MB	+	0.0411361	0.1177
			(1.58)
PERF1	-	-0.6835628	0.0767*
			(-1.78)
SWITCH	-	0.1815055	0.3576
			(0.92)
t-3	?	-0.1974274	0.3778
			(-0.88)
t-2	?	-0.6410309	0.0058**
			(-2.81)
t-1	?	-0.3498799	0.107
			(-1.62)
t1	?	-0.2707648	0.0803*
			(-1.76)
t2	?	-0.1229935	0.5585
			(-0.59)
t3	?	-0.889197	0.0007**
			(-3.49)
model adjusted R^2		0.5845	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

Table 3.9 (*continued*)

Panel A.4: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-8.0341589	<.0001**	-8.4842381	<.0001**
			(-9.42)		(-7.03)
CG4 / POUTSIDE	-	-0.1066377	0.8426	0.4068589	0.7553
			(-0.20)		(0.31)
CG4/POUTSIDE*t-3	?	-0.4254126	0.4736	0.1333407	0.932
			(-0.72)		(0.09)
CG4/POUTSIDE*t-2	?	-0.1802989	0.7834	-1.5814015	0.2914
			(-0.28)		(-1.06)
CG4/POUTSIDE*t-1	?	1.3333749	0.2448	2.0502101	0.2939
			(1.17)		(1.05)
CG4/POUTSIDE*t1	?	-0.2695229	0.5558	-0.0786398	0.9476
			(-0.59)		(-0.07)
CG4/POUTSIDE*t2	?	-0.7359568	0.1966	-3.4393474	0.0982*
			(-1.30)		(-1.67)
CG4/POUTSIDE*t3	?	0.1171874	0.8529	-1.2560318	0.4528
			(0.19)		(-0.75)
SIZE	?	0.8590694	<.0001**	0.8599482	<.0001**
			(19.40)		(19.35)
LEV	+	0.7574606	0.0623*	0.7793829	0.0528*
			(1.88)		(1.95)
BIG5	-	0.1291538	0.751	0.1198354	0.7518
			(0.32)		(0.32)
MB	+	0.0469472	0.0828*	0.0461187	0.0905*
			(1.75)		(1.71)
PERF1	-	-0.6946185	0.0705*	-0.6855141	0.0838*
			(-1.82)		(-1.74)
SWITCH	-	0.1524077	0.4444	0.1203129	0.5367
			(0.77)		(0.62)
t-3	?	0.0771734	0.8876	-0.4067833	0.7501
			(0.14)		(-0.32)
t-2	?	-0.2862206	0.6498	0.8117968	0.5078
			(-0.46)		(0.66)
t-1	?	-1.3600845	0.234	-1.7465051	0.2832
			(-1.20)		(-1.08)
t1	?	-0.0457564	0.914	-0.2457693	0.804
			(-0.11)		(-0.25)
t2	?	0.4111738	0.4355	2.5679805	0.1327
			(0.78)		(1.51)
t3	?	-0.7577689	0.2139	0.3835694	0.7769
			(-1.25)		(0.28)
model adjusted R^2		0.5809		0.5819	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel A.5: Restaters

variable	expected sign	model 1 coeff	model 1 Pr>|t| (t-value)	model 2 coeff	model 2 Pr>|t| (t-value)
intercept		-8.4659957	<.0001** (-11.39)	-8.6124136	<.0001** (-10.06)
CG5 / PACSIZE	-	-0.1432171	0.4993 (-0.68)	-0.2175676	0.7817 (-0.28)
CG5/PACSIZE *t-3	?	0.5479083	0.1472 (1.46)	1.5265254	0.208 (1.27)
CG5/PACSIZE *t-2	?	0.822396	0.0416** (2.06)	2.2509899	0.0590* (1.90)
CG5PACSIZE *t-1	?	0.2081047	0.5822 (0.55)	0.1967644	0.8681 (0.17)
CG5/PACSIZE *t1	?	0.4153269	0.195 (1.30)	-0.1060121	0.9255 (-0.09)
CG5/PACSIZE *t2	?	0.3391759	0.3911 (0.86)	1.1096183	0.4639 (0.73)
CG5/PACSIZE *t3	?	-0.7714297	0.0909* (-1.70)	1.6256562	0.3322 (0.97)
SIZE	?	0.8805171	<.0001** (20.42)	0.8788214	<.0001** (20.57)
LEV	+	0.7104151	0.0664* (1.85)	0.696734	0.0784* (1.77)
BIG5	-	0.1102966	0.7726 (0.29)	0.1321615	0.7369 (0.34)
MB	+	0.0486646	0.0718* (1.82)	0.0477555	0.0782* (1.78)
PERF1	-	-0.6889663	0.0702* (-1.83)	-0.6996763	0.0703* (-1.83)
SWITCH	-	0.1674755	0.3885 (0.87)	0.1479841	0.4384 (0.78)
t-3	?	-0.5934854	0.0329** (-2.16)	-0.9723005	0.1047 (-1.63)
t-2	?	-0.9216741	0.0012** (-3.30)	-1.4599622	0.0091** (-2.65)
t-1	?	-0.2124755	0.3993 (-0.85)	-0.1936526	0.7259 (-0.35)
t1	?	-0.5468377	0.0087 (-2.66)	-0.25411	0.6276 (-0.49)
t2	?	-0.4831485	0.1034 (-1.64)	-0.7863798	0.2729 (-1.10)
t3	?	-1.0700032	0.0021** (-3.14)	-1.3683614	0.0958* (-1.68)
model adjusted R^2		0.5839		0.5827	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel A.6: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-7.9984683	<.0001**	-8.0852768	<.0001**
			(-10.71)		(-11.39)
CG6 / ACMEET	-	-0.3606469	0.1275	-0.0345866	0.0240**
			(-1.53)		(-2.32)
CG6/ACMEET *t-3	?	-0.2142722	0.5871	0.1099247	0.3635
			(-0.54)		(0.91)
CG6/ACMEET *t-2	?	0.3838284	0.3463	0.0936682	0.3124
			(0.95)		(1.01)
CG6/ACMEET *t-1	?	-0.4798608	0.1789	-0.0606813	0.1976
			(-1.35)		(-1.30)
CG6/ACMEET *t1	?	-0.3689142	0.2108	-0.0466846	0.0257**
			(-1.26)		(-2.26)
CG6/ACMEET *t2	?	-0.117133	0.7544	0.0054117	0.9157
			(-0.31)		(0.11)
CG6/ACMEET *t3	?	0.1451577	0.6944	0.0289405	0.4372
			(0.39)		(0.78)
SIZE	?	0.8440537	<.0001**	0.8454511	<.0001**
			(17.53)		(18.42)
LEV	+	0.70808	0.0645*	0.711779	0.0676*
			(1.86)		(1.84)
BIG5	-	0.1377142	0.7227	0.1202722	0.7546
			(0.36)		(0.31)
MB	+	0.0435309	0.1146	0.0491588	0.0745*
			(1.59)		(1.80)
PERF1	-	-0.746367	0.0540*	-0.7255466	0.0571*
			(-1.94)		(-1.92)
SWITCH	-	0.1349399	0.4862	0.1281011	0.5105
			(0.70)		(0.66)
t-3	?	-0.202498	0.5176	-0.4605851	0.2903
			(-0.65)		(-1.06)
t-2	?	-0.7329894	0.0433**	-0.6370239	0.1315
			(-2.04)		(-1.52)
t-1	?	0.1660048	0.551	0.2635725	0.2909
			(0.60)		(1.06)
t1	?	-0.1057654	0.629	0.0486645	0.8312
			(-0.48)		(0.21)
t2	?	-0.2272135	0.4727	-0.3669804	0.4727
			(-0.72)		(-0.72)
t3	?	-0.7574026	0.0084**	-0.9549312	0.0142**
			(-2.68)		(-2.49)
model adjusted R^2		0.5831		0.5827	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel B.1: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.528036	<.0001**	-6.3171389	<.0001**
			(-5.78)		(-6.01)
CG1 / BSIZE	-	0.1351801	0.6437	-0.0673598	0.2658
			(0.46)		(-1.12)
CG1/BSIZE *t-3	?	-0.297903	0.4843	0.0966271	0.1512
			(-0.70)		(1.44)
CG1/BSIZE *t-2	?	0.1455359	0.6713	0.0033059	0.9535
			(0.43)		(0.06)
CG1/BSIZE *t-1	?	0.0678137	0.8232	0.0222421	0.6824
			(0.22)		(0.41)
CG1/BSIZE *t1	?	-0.339701	0.256	0.0585683	0.3495
			(-1.14)		(0.94)
CG1BSIZE *t2	?	0.0335132	0.9285	0.0303448	0.6172
			(0.09)		(0.50)
CG1/BSIZE *t3	?	-0.1533097	0.6916	-0.0003093	0.9969
			(-0.40)		(-0.00)
SIZE	?	0.7800848	<.0001**	0.7994449	<.0001**
			(13.83)		(12.19)
LEV	+	0.7728749	0.0261**	0.7901923	0.0241**
			(2.25)		(2.28)
BIG5	-	-0.0372328	0.8708	-0.0223986	0.9219
			(-0.16)		(-0.10)
MB	+	-0.0025347	0.9304	0.0018645	0.9466
			(-0.09)		(0.07)
PERF1	-	-0.2190769	0.6925	-0.1996473	0.7177
			(-0.40)		(-0.36)
SWITCH	-	0.016041	0.9327	0.0159616	0.9334
			(0.08)		(0.08)
t-3	?	-0.1888478	0.553	-1.1413697	0.0485**
			(-0.59)		(-1.99)
t-2	?	-0.1790018	0.4645	-0.1182689	0.8177
			(-0.73)		(-0.23)
t-1	?	-0.1304512	0.5364	-0.2756907	0.5917
			(-0.62)		(-0.54)
t1	?	0.0455836	0.8454	-0.6435547	0.2367
			(0.20)		(-1.19)
t2	?	-0.4857098	0.1085	-0.7230364	0.1725
			(-1.62)		(-1.37)
t3	?	-0.1776097	0.5347	-0.2533927	0.709
			(-0.62)		(-0.37)
model adjusted R^2		0.4864		0.487	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel B.2: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.4958756	<.0001**	-6.6109395	<.0001**
			(-6.56)		(-6.90)
CG2 / BMEET	-	0.4714893	0.2094	0.0636121	0.2982
			(1.26)		(1.04)
CG2/BMEET*t-3	?	0.1234953	0.7791	0.0181589	0.6857
			(0.28)		(0.41)
CG2/BMEET *t-2	?	-0.314722	0.428	-0.0068137	0.8751
			(-0.80)		(-0.16)
CG2/BMEET *t-1	?	-0.6700196	0.5289	-0.053614	0.1637
			(-0.63)		(-1.40)
CG2/BMEET *t1	?	-0.1017993	0.7695	-0.018246	0.7093
			(-0.29)		(-0.37)
CG2/BMEET *t2	?	0.0053919	0.9883	0.0086526	0.8729
			(0.01)		(0.16)
CG2/BMEET *t3	?	-0.0771941	0.8531	-0.0082787	0.8907
			(-0.19)		(-0.14)
SIZE	?	0.7726956	<.0001**	0.7708241	<.0001**
			(14.73)		(14.52)
LEV	+	0.6634563	0.0461**	0.6729868	0.0454**
			(2.01)		(2.02)
BIG5	-	-0.0984974	0.6781	-0.0982915	0.6792
			(-0.42)		(-0.41)
MB	+	-0.0045184	0.8724	-0.0004861	0.9864
			(-0.16)		(-0.02)
PERF1	-	-0.2480084	0.645	-0.2818681	0.6169
			(-0.46)		(-0.50)
SWITCH	-	-0.0316231	0.8692	0.0025716	0.9894
			(-0.17)		(0.01)
t-3	?	-0.3583188	0.28	-0.4892264	0.2187
			(-1.08)		(-1.24)
t-2	?	0.1328801	0.6801	-0.028409	0.937
			(0.41)		(-0.08)
t-1	?	0.3391095	0.1456	0.2929746	0.3346
			(1.46)		(0.97)
t1	?	-0.0875034	0.7698	-0.0369881	0.9262
			(-0.29)		(-0.09)
t2	?	-0.4079576	0.1912	-0.5538608	0.2073
			(-1.31)		(-1.27)
t3	?	-0.1962505	0.5744	-0.2430783	0.6408
			(-0.56)		(-0.47)
model adjusted R^2		0.4923		0.4918	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel B.3: Non-Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-6.7651351	<.0001**
			(-6.90)
CG3	-	0.5680493	0.2822
			(1.08)
CG3*t-3	?	-0.2631567	0.5613
			(-0.58)
CG3*t-2	?	-0.5460595	0.1445
			(-1.47)
CG3*t-1	?	-0.6403208	0.1636
			(-1.39)
CG3*t1	?	0.0173917	0.9536
			(0.06)
CG3*t2	?	-0.1021626	0.7574
			(-0.31)
CG3*t3	?	-0.6254013	0.3725
			(-0.89)
SIZE	?	0.7874402	<.0001**
			(15.08)
LEV	+	0.749348	0.0276**
			(2.23)
BIG5	-	-0.0673691	0.7605
			(-0.31)
MB	+	-0.0054341	0.851
			(-0.19)
PERF1	-	-0.2238221	0.6845
			(-0.41)
SWITCH	-	0.0057486	0.9764
			(0.03)
t-3	?	-0.2177735	0.3807
			(-0.88)
t-2	?	0.1271073	0.5279
			(0.63)
t-1	?	0.1558403	0.4156
			(0.82)
t1	?	-0.1561133	0.4213
			(-0.81)
t2	?	-0.430651	0.0685*
			(-1.84)
t3	?	-0.0330231	0.873
			(-0.16)
model adjusted R^2		0.491	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

Table 3.9 (*continued*)

Panel B.4: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.9639671	<.0001**	-7.1623018	<.0001**
			(-6.49)		(-6.27)
CG4 / POUTSIDE	-	0.521309	0.2581	1.3479897	0.1965
			(1.14)		(1.30)
CG4/POUTSIDE*t-3	?	-0.0257463	0.9663	0.4296464	0.7858
			(-0.04)		(0.27)
CG4/POUTSIDE*t-2	?	0.3578141	0.6746	0.9620963	0.6075
			(0.42)		(0.51)
CG4/POUTSIDE*t-1	?	0.9289019	0.4026	1.0040378	0.6008
			(0.84)		(0.52)
CG4/POUTSIDE*t1	?	0.3142478	0.3596	0.6653227	0.5676
			(0.92)		(0.57)
CG4/POUTSIDE*t2	?	-0.5790064	0.5055	0.9460307	0.5222
			(-0.67)		(0.64)
CG4/POUTSIDE*t3	?	-1.0884082	0.1563	-0.8840902	0.5484
			(-1.42)		(-0.60)
SIZE	?	0.7841921	<.0001**	0.7681819	<.0001**
			(14.51)		(14.46)
LEV	+	0.7284075	0.0363**	0.7336539	0.0347**
			(2.12)		(2.13)
BIG5	-	-0.0615232	0.7864	-0.1360241	0.5682
			(-0.27)		(-0.57)
MB	+	-0.007666	0.7859	-0.0069212	0.8062
			(-0.27)		(-0.25)
PERF1	-	0.1467235	0.775	0.1508317	0.7739
			(0.29)		(0.29)
SWITCH	-	0.0144355	0.9413	0.0444219	0.8204
			(0.07)		(0.23)
t-3	?	-0.2974773	0.5976	-0.6472911	0.6104
			(-0.53)		(-0.51)
t-2	?	-0.3982111	0.6352	-0.8377307	0.5809
			(-0.48)		(-0.55)
t-1	?	-0.950999	0.3841	-0.8731372	0.579
			(-0.87)		(-0.56)
t1	?	-0.4726058	0.1278	-0.7005083	0.4513
			(-1.53)		(-0.76)
t2	?	0.0783398	0.928	-1.25803	0.3081
			(0.09)		(-1.02)
t3	?	0.7709626	0.1496	0.440329	0.7088
			(1.45)		(0.37)
model adjusted R^2		0.4917		0.4924	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel B.5: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.6322709	<0001**	-7.3402674	<.0001**
			(-6.06)		(-5.68)
CG5 / PACSIZE	-	0.2076275	0.4254	1.664605	0.1177
			(0.80)		(1.58)
CG5/PACSIZE *t-3	?	-0.3642615	0.4282	-2.0789162	0.3495
			(-0.79)		(-0.94)
CG5/PACSIZE *t-2	?	-0.3585452	0.3075	-1.7512431	0.2499
			(-1.02)		(-1.16)
CG5PACSIZE *t-1	?	0.074217	0.8208	-0.6234237	0.6113
			(0.23)		(-0.51)
CG5/PACSIZE *t1	?	-0.4046033	0.1728	-2.3720994	0.448
			(-1.37)		(-0.76)
CG5/PACSIZE *t2	?	-0.2607492	0.3826	-0.8629764	0.4705
			(-0.88)		(-0.72)
CG5/PACSIZE *t3	?	0.318334	0.4264	0.2781	0.8445
			(0.80)		(0.20)
SIZE	?	0.7831815	<.0001**	0.7856412	<.0001**
			(13.86)		(13.95)
LEV	+	0.7507883	0.0321**	0.731741	0.0360**
			(2.17)		(2.12)
BIG5	-	-0.0344686	0.8797	0.0153943	0.9494
			(-0.15)		(0.06)
MB	+	0.0007885	0.9783	0.0012834	0.9642
			(0.03)		(0.05)
PERF1	-	-0.1817885	0.7428	-0.1960971	0.7248
			(-0.33)		(-0.35)
SWITCH	-	0.0295467	0.8823	0.0354744	0.8564
			(0.15)		(0.18)
t-3	?	-0.1481545	0.6701	0.5563606	0.5691
			(-0.43)		(0.57)
t-2	?	0.1152765	0.6407	0.6920033	0.3093
			(0.47)		(1.02)
t-1	?	-0.1253105	0.5937	0.200386	0.7177
			(-0.53)		(0.36)
t1	?	0.0796976	0.7199	0.9004572	0.1338
			(0.36)		(1.51)
t2	?	-0.318348	0.1402	-0.090164	0.8758
			(-1.48)		(-0.16)
t3	?	-0.4558687	0.1813	-0.3926421	0.5841
			(-1.34)		(-0.55)
model adjusted R^2		0.4881		0.4878	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

Table 3.9 (*continued*)

Panel B.6: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-5.932988	<.0001**	-5.6987099	<.0001**
			(-5.89)		(-5.55)
CG6 / ACMEET	-	0.3253364	0.171	0.0186601	0.6995
			(1.38)		(0.39)
CG6/ACMEET *t-3	?	0.6694137	0.2451	0.2451863	0.0657*
			(1.17)		(1.86)
CG6/ACMEET *t-2	?	-0.3140852	0.4033	-0.0029609	0.9789
			(-0.84)		(-0.03)
CG6/ACMEET *t-1	?	-0.5932603	0.224	0.0115094	0.8762
			(-1.22)		(0.16)
CG6/ACMEET *t1	?	-0.3961619	0.2156	0.0252038	0.6097
			(-1.24)		(0.51)
CG6/ACMEET *t2	?	0.6437933	0.1105	0.1103764	0.648
			(1.61)		(0.46)
CG6/ACMEET *t3	?	0.2001661	0.6316	0.0583272	0.359
			(0.48)		(0.92)
SIZE	?	0.7486587	<.0001**	0.7394235	<.0001**
			(13.67)		(13.36)
LEV	+	0.7038237	0.0428**	0.7515491	0.0290**
			(2.05)		(2.21)
BIG5	-	-0.0626915	0.778	-0.0440719	0.8451
			(-0.28)		(-0.20)
MB	+	-0.0040281	0.888	-0.0018071	0.9493
			(-0.14)		(-0.06)
PERF1	-	0.2359514	0.6708	0.2311252	0.6823
			(0.43)		(0.41)
SWITCH	-	-0.0294478	0.8791	-0.0158034	0.9346
			(-0.15)		(-0.08)
t-3	?	-0.9558545	0.0563*	-0.9912955	0.0428**
			(-1.93)		(-2.05)
t-2	?	0.0933621	0.7454	-0.044646	0.919
			(0.33)		(-0.10)
t-1	?	0.2913473	0.231	-0.1176622	0.7524
			(1.20)		(-0.32)
t1	?	0.0688548	0.7329	-0.3587812	0.2445
			(0.34)		(-1.17)
t2	?	-0.8501137	0.0073**	-1.3677186	0.0036**
			(-2.73)		(-2.97)
t3	?	-0.36936	0.2649	-0.8087147	0.1209
			(-1.12)		(-1.56)
model adjusted R^2		0.4981		0.4944	
Pr > F		<.0001**		<.0001**	
number of restating firms		137		137	
number of observations		899		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; CG1 = 1 if the firm's board size is smaller than the sample median, 0 otherwise; BSIZE = the board size; CG2 = 1 if the number of board meetings is greater than the

sample median, 0 otherwise; BMEET = the number of board meetings; CG3 = 1 if the CEO is not the same person as the chair of the Board of Directors, 0 otherwise; CG4 = 1 if 60% or more of the directors is independent, 0 otherwise; POUTSIDE = the percentage of independent directors; CG5 = 1 if the proportion of the firm's audit committee size to its board size is greater than the sample median, 0 otherwise; PACSIZE = the proportion of the firm's audit committee size to its board size; CG6 = 1 if the number of audit committee meetings is greater than the sample median, 0 otherwise; ACMEET = the number of audit committee meetings; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.6.3.5 Income-increasing working capital accruals versus income-decreasing working capital accruals

Since we have a small sample size and since some companies have income-increasing working capital accruals in one year and income-decreasing working capital accruals in the next year, it is difficult to test the difference in reaction of restating firms with income-increasing working capital accruals and restating firms with income-decreasing working capital accruals.

However, we made a distinction in the year of the restatement announcement between restating firms with income-increasing working capital accruals and restating firms with income-decreasing firms. We did not report the results, but there was still no difference in the efficacy of corporate governance on the non-existing of earnings management before and after the restatement announcement for both groups of restating firms (income-increasing and income decreasing).

3.6.3.6 Restating firms with core-item problems versus restating firms with non-core item problems

We checked whether the above results hold for the sample of restating firms with core item problems and their matched non-restating firms, and for the sample of restating firms with non-core item problems and their matched non-restating firms. Table 3.10 reports the results. Model 1 gives the results for the restatements with core item problems and model 2 for the restatements with non-core item problems. We indicate that the above results hold for both the sample of restating firms with core item problems and for the sample of restating firms with non-core item problem.

Table 3.10: Sensitivity checks – restatements due to core items versus restatements due to non-core items

Panel A: Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-6.8982985	<.0001**	-7.2760015	<.0001**
			(4.18)		(-10.55)
INTGOV	-	-0.0900016	0.7359	0.1910278	0.4844
			(-0.34)		(0.70)
INTGOV *t-3	?	0.2584544	0.6586	0.2816225	0.6098
			(0.44)		(0.51)
INTGOV*t-2	?	0.5082958	0.219	0.5923979	0.1016
			(1.24)		(1.65)
INTGOV*t-1	?	-0.1363063	0.7182	-0.2439255	0.4436
			(-0.36)		(-0.77)
INTGOV*t1	?	-0.7068456	0.127	-0.1544143	0.6338
			(-1.53)		(-0.48)
INTGOV*t2	?	-0.5282326	0.1511	-0.0581084	0.8721
			(-1.44)		(-0.16)
INTGOV*t3	?	-0.3524735	0.3645	-0.0026826	0.9941
			(-0.91)		(-0.01)
SIZE	?	0.8924726	<.0001**	0.8587754	<.0001**
			(19.54)		(23.65)
LEV	+	0.6830635	0.0787*	0.3994666	0.1738
			(1.77)		(1.37)
BIG5	-	0.0341524	0.9249	-0.0165493	0.9436
			(0.09)		(-0.07)
MB	+	0.0447447	0.0772*	0.0107087	0.5934
			(1.78)		(0.54)
PERF1	-	-2.3976737	<.0001**	-0.64473	0.0219**
			(-6.00)		(-2.32)
SWITCH	-	-0.0079044	0.9701	0.0368164	0.8397
			(-0.04)		(0.20)
t-3	?	0.0774603	0.8767	-0.8695462	0.0971*
			(0.16)		(-1.67)
t-2	?	-0.6830204	0.0222**	-0.5359033	0.0826*
			(-2.31)		(-1.75)
t-1	?	-0.281322	0.3634	0.0924818	0.6995
			(-0.91)		(0.39)
t1	?	-0.3421345	0.1631	-0.1715589	0.495
			(-1.40)		(-0.68)
t2	?	-0.6797452	0.0507*	-0.2044432	0.4878
			(-1.97)		(-0.70)
t3	?	-1.1526569	0.0042**	-0.5298648	0.0602*
			(-2.92)		(-1.90)
model adjusted R^2		0.5518		0.6136	
Pr > F		<.0001**		<.0001**	
number of restating firms		75		68	
number of observations		493		447	

Table 3.10 *(continued)*

Panel B: Non-Restaters

		model 1		model 2	
variable	expected sign	coeff	Pr>|t| (t-value)	coeff	Pr>|t| (t-value)
intercept		-7.0476362	<.0001**	-6.8126846	<.0001**
			(-7.01)		(-8.38)
INTGOV	-	0.6151216	0.2482	0.6451108	0.2595
			(1.16)		(1.13)
INTGOV *t-3	?	0.0354101	0.9406	-0.624577	0.0957*
			(0.07)		(-1.68)
INTGOV*t-2	?	-0.5902094	0.2643	-0.2613798	0.3836
			(-1.12)		(-0.87)
INTGOV*t-1	?	-0.6709043	0.2489	-0.8618289	0.1415
			(-1.15)		(-1.47)
INTGOV*t1	?	-0.5986435	0.3369	-0.6015201	0.3436
			(-0.96)		(-0.95)
INTGOV*t2	?	-0.2141885	0.569	-0.2953177	0.316
			(-0.57)		(-1.01)
INTGOV*t3	?	-0.4106947	0.2891	-0.5660576	0.0583*
			(-1.06)		(-1.91)
SIZE	?	-0.0183691	0.7705	0.811337	<.0001**
			(-0.29)		(17.95)
LEV	+	0.6732167	0.0416**	0.5994525	0.0234**
			(2.06)		(2.29)
BIG5	-	-0.1106883	0.6297	-0.1238691	0.5611
			(-0.48)		(-0.58)
MB	+	-0.001871	0.947	-0.0104005	0.644
			(-0.07)		(-0.46)
PERF1	-	0.2295725	0.2216	-0.3422704	0.2398
			(1.23)		(-1.18)
SWITCH	-	-0.1421601	0.4468	0.0846128	0.5739
			(-0.76)		(0.56)
t-3	?	0.3178313	0.3107	-0.0787109	0.7892
			(1.02)		(-0.27)
t-2	?	0.3940954	0.2362	0.0281238	0.9021
			(1.19)		(0.12)
t-1	?	0.3193416	0.1227	0.5520834	0.0040**
			(1.55)		(2.93)
t1	?	0.1795344	0.4345	0.3461883	0.1014
			(0.78)		(1.65)
t2	?	-0.4414168	0.1344	-0.1060112	0.6079
			(-1.51)		(-0.51)
t3	?	-0.1251216	0.6961	-0.0431354	0.8329
			(-0.39)		(-0.21)
model adjusted R^2		0.5272		0.5804	
Pr > F		<.0001**		<.0001**	
number of restating firms		75		68	
number of observations		493		447	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; INTGOV = 1 if the firm has strong internal governance, 0 otherwise; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement,

0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.6.4 Additional analysis

3.6.4.1 Endogeneity

It might be that there is an endogeneity problem between the global internal corporate governance measure, INTGOV, and the fact that the company announces a restatement. This endogeneity problem causes bias in the coefficient of the corporate governance variable. To solve this problem we use a "semi-endogenous" variable as instrument in our OLS regression with Rogers' corrected estimates for standard errors.[77] A possible instrument is the internal corporate governance of a company lagged one year, INTGOV-1. The results of the OLS regression of the current internal governance variable on the lagged internal governance measure are presented in Table 3.11 Panel A. We notice a high correlation between the endogenous variable and the instrument (INTGOV-1, $p<.0001$). This instrument is less endogenous than the current internal governance variable, as a company that announces a restatement in the current year can not influence the internal governance variables of the previous year. Further, the pseudo R^2 of the regression is 79.13%, the explanatory power is high.

The results of Table 3.11 Panel B present the influence of the internal governance variable on the abnormal working capital accruals for restating and non-restating firms using the predicted value of the internal governance variable. Results show that the predicted value of strong internal corporate governance works less efficiently on the non-existence of earnings management in the second year before the restatement announcement than in the year of the restatement announcement for restating firms (^INTGOV*t-2, $p=0.0708$). We notice two significant interaction terms for the non-restating companies, but these terms are only significant at the 10% level. Further, we indicate no significant influence of strong internal governance on the non-existence of earnings management for non-restating companies.

[77] "Semi-endogenous" variables are rather endogenous, but have a high correlation with the endogenous variable.

Table 3.11: Additional analysis – endogeneity

Panel A: Instrumental variable

variable	expected sign	coeff	Pr>ChiSq (Chi-Square)
intercept		-2.055	0.0007**
			(11.5428)
INTGOV-1	+	2.1665	<.0001**
			(375.0907)
SIZE	+	0.154	<.0001**
			(20.8397)
LEV	-	-0.2787	0.2551
			(1.2951)
BIG5	+	-0.148	0.4385
			(0.6003)
PERF1	+	0.969	0.0009**
			(11.1249)
pseudo R^2		0.7913	
number of observations		1918	

Table 3.11 (*continued*)

Panel B.1: Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-8.43562	<.0001**
			(-11.44)
^INTGOV	-	-0.2512704	0.2791
			(-1.09)
^INTGOV*t-3	?	-0.412083	0.2561
			(-1.14)
^INTGOV*t-2	?	0.8680898	0.0708*
			(1.82)
^INTGOV*t-1	?	0.0461916	0.8827
			(0.15)
^INTGOV*t1	?	0.1717349	0.6255
			(0.49)
^INTGOV*t2	?	-0.0699191	0.8623
			(-0.17)
^INTGOV*t3	?	0.4215011	0.2502
			(1.16)
SIZE	?	0.870349	<.0001**
			(20.61)
LEV	+	0.6946046	0.0673*
			(1.84)
BIG5	-	0.0985162	0.7903
			(0.27)
MB	+	0.0456181	0.0890*
			(1.71)
PERF1	-	-0.7935081	0.0456**
			(-2.02)
SWITCH	-	0.1340086	0.4745
			(0.72)
t-3	?	-0.0932745	0.7059
			(-0.38)
t-2	?	-1.2678009	0.0033**
			(-2.99)
t-1	?	-0.1323259	0.5181
			(-0.65)
t1	?	-0.4946089	0.0732*
			(-1.81)
t2	?	-0.2720294	0.4434
			(-0.77)
t3	?	-0.930892	0.0018**
			(-3.19)
model adjusted R^2		0.5857	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

Table 3.11 (*continued*)

Panel B.2: Non-Restaters

		model 1	
variable	expected sign	coeff	Pr>|t| (t-value)
intercept		-6.6765402	<.0001**
			(-6.51)
^INTGOV	-	0.0257332	0.9237
			(0.10)
^INTGOV*t-3	?	0.8289247	0.0988*
			(1.65)
^INTGOV*t-2	?	0.4154678	0.2553
			(1.14)
^INTGOV*t-1	?	0.1424544	0.6787
			(0.42)
^INTGOV*t1	?	-0.1776546	0.5916
			(-0.54)
^INTGOV*t2	?	0.538333	0.1666
			(1.39)
^INTGOV*t3	?	0.5253954	0.178
			(1.35)
SIZE	?	0.7919887	<.0001**
			(14.93)
LEV	+	0.7125241	0.0368**
			(2.11)
BIG5	-	-0.0031244	0.9888
			(-0.01)
MB	+	-0.012384	0.6577
			(-0.44)
PERF1	-	-0.1749295	0.743
			(-0.33)
SWITCH	-	0.0002724	0.9988
			(0.00)
t-3	?	-0.8163118	0.0166**
			(-2.43)
t-2	?	-0.3005146	0.2864
			(-1.07)
t-1	?	-0.1562131	0.4888
			(-0.69)
t1	?	-0.0588698	0.7958
			(-0.26)
t2	?	-0.7807767	0.0094**
			(-2.64)
t3	?	-0.5276268	0.0929*
			(-1.69)
model adjusted R^2		0.4953	
Pr > F		<.0001**	
number of restating firms		137	
number of observations		899	

* indicates significance at the .10 level (two-sided)
** indicates significance at the .05 level (two-sided)

Where LNAAWCA = natural logarithm of absolute value of abnormal working capital accruals; INTGOV = 1 if the firm has strong internal governance, 0 otherwise; INTGOV-1 = 1 if the firm has strong internal governance in the previous year, 0 otherwise;

^INTGOV = predicted value of INTGOV; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; MB = market value of equity divided by book value; PERF1 = cash flow from operations scaled by the beginning of the year total assets; SWITCH = 1 if the firm has a different external auditor and/or management than last year, 0 otherwise;

3.7 CONCLUSION

In this study we investigate whether there is a difference in the influence of strong internal corporate governance on earnings management between restating and non-restating companies over a period of seven years around the restatement announcement. Most prior literature (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)) investigating market and accounting consequences in a long time window after the restatement announcement uses a sample of only restating firms. We, on the other hand, will use a matched pair design in this study. This research contributes also to the literature of earnings management and the role of corporate governance (e.g., Carcello et al. (2006), Bowen et al. (2004), Becker et al. (1998), Menon and Williams (2004), Klein (2002)). We will focus on the influence of strong internal corporate governance on an accounting based measure of earnings quality and check whether there is a difference in behaviour between restating and non-restating firms.

Many different stakeholders, such as the policy maker, the investors and the company itself, benefit from the results of this research. The policy maker must know whether strong corporate governance works better in a restating or in a non-restating environment, so that he can create an artificial framework where the influence of strong corporate governance performance on earnings quality is always good. This study is also important to investors, with a look on some corporate governance variables, they can judge if earnings management is high or low, and even higher or lower for restating firms. Finally, the firm itself benefits from this study. The firm gets an idea whether the announcement of an accounting restatement has a positive consequence, namely the efficacy of internal corporate governance on earnings management increases.

Using a sample of 137 U.S. restating companies and their industry and size matched companies, results show that the internal corporate governance as a whole is better for restating firms than for non-restating firms during the seven years around the restatement announcement, especially during the year of and the first and the second year after the restatement announcement. In the third year after the restatement announcement there is no significant difference between restating and non-restating firms concerning the internal corporate governance characteristics. Further, we find in the univariate results that the absolute value of abnormal working capital

accruals does not significantly differ between restating and non-restating companies during each of the seven years around the announcement of a restatement, but the multivariate results indicate the efficacy of the corporate governance during the seven years around the restatement announcement.

The results noticed that for restating companies strong internal corporate governance is not more efficient in preventing earnings management after than before a restatement announcement. In contrast with the expectations, strong internal corporate governance of restating firms did not work more efficiently in preventing the existence of earnings management in the years after the restatement announcement of an accounting restatement compared to the years before the restatement announcement. Experiencing the announcement of a restatement does not influence the efficacy of strong internal corporate governance on the absolute value of abnormal working capital accruals. We report that the association between strong internal corporate governance and the natural logarithm of the absolute value of abnormal working capital accruals is not significant during the period of seven years for non-restating firms. The results stay the same when controlling for endogeneity.

This study includes several limitations. First of all, the small sample size (137 restating firms) is due to manual data collection of internal corporate governance characteristics. Second, we only use one accounting based measure of earnings quality. Future research can use other accounting based measures and also market based measures. These additional results could give a more complete indication of the earnings quality of restating firms and would help the policy maker to make a well considered decision. Third, only seven board and audit committee characteristics are included in the internal corporate governance index. Future research could include other governance characteristics of which the size is also not established by SOX. Fourth, we collected data over a seven year time period. Collection of quarterly data could give more detailed information about the earnings quality. Finally, we did not pay any attention to the restatement characteristics in the analyses.

GENERAL CONCLUSION

Since the late ‘90s many financial reporting faults have been detected and made public. The confidence of the stakeholders has been seriously disturbed, because of the enormous increase in accounting errors. The auditor, the SEC, or the company itself can discover an accounting irregularity, which can lead to the issuing of a financial restatement. Several characteristics, such as the initiator, the reason, the materiality, the pervasiveness, the persistence, whether the restatement is an under- or overstatement and the reported quantification of the materiality at the announcement, determine the importance of a restatement.

The international scientific literature has been influenced by this boom in accounting restatements. On the one hand, there are studies that pay attention to the determinants of a restatement; other research investigates the consequences of announcing an accounting restatement.

By focusing on the consequences for different stakeholders in this dissertation, our contributions to the restatement literature are twofold. First, the restatement literature concerning the consequences has been underdeveloped compared to the restatement literature concerning the determinants. Second, manipulating financial reports can involve costs and benefits; the discovery of this incorrect behaviour, resulting in a financial restatement, can influence the different stakeholders both positively and negatively. So, it is important and relevant for all the stakeholders to know which advantages and disadvantages are related with the discovery of financial statement manipulation, and thus the announcement of an accounting restatement.

In a first chapter, we investigated the bondholders’ reaction after the announcement of an accounting restatement. While prior research focused on the reaction of stockholders (e.g., Anderson and Yohn (2002), Hirschey et al. (2003), Srinivasan (2006)), we paid attention to the impact of an accounting restatement on a firm’s cost of public debt. Since the bond market is the most significant external financing channel, the bondholders’ perspective is important to consider.

The results reported an increase in the cost of public debt around the announcement of a restatement of on average 6.2%. We report an increase in the cost of equity of on average 7.5%. We notice that the reaction of stockholders is larger than the reaction of bondholders. Furthermore, we investigated whether restatement characteristics influence the reaction of the bondholders. We indicated that the bondholders react significantly more negatively to the announcement of an overstatement with larger materiality and that there is an additional penalty of the bondholders when the reported quantification of the materially at the announcement is not exact.

In contrast to debt holders, equity holders do react indifferently whether the reported quantification of the materiality at the announcement is exact or not; and the stockholders' reaction is more negative when the materiality is larger.

By investigating the bondholders' view, we introduced an alternative measure for the cost of debt used in event studies. Our measure is based on daily yields to maturity of bonds and daily yields to maturity of treasury bonds with corresponding maturity.

A main limitation of this study is the small sample size, only 10% of the GAO database of restating companies have outstanding bonds surrounding the announcement date of the restatement. Another limitation of our research is the lack of a matched pair design. Future research could include a comparison between matching the restating firms and matching the bonds of the restating firms. This paper did not include any variable that presents the time period between the fault in the financial statements and the announcement of a restatement. Further, the variety in the sample of restatements with a non-exact reported quantification of the materiality at the restatement announcement is rather large, as observations with an approximate quantification of the materiality, as well as observations with a qualitative indication of the materiality are included.

In a second chapter, we examined whether the level of audit fees paid to the incumbent auditor is influenced by the announcement of an accounting restatement. Prior literature mainly focuses on audit related characteristics of restating firms (e.g., DeFond and Jiambalvo (1991), Kinney and McDaniel (1989)), whereas our research fits in the category of audit related consequences of announcing an accounting restatement. Both the incumbent auditor and the restating firm itself benefit from the results of this study. The incumbent auditor, as an important stakeholder, gets an idea how other auditors dealt with restating problems in the past; the restating firm itself knows how the level of audit fees will react after the announcement of the restatement of an accounting irregularity and how persistent the auditor's reaction is. The restating firm has an idea whether it faces after the announcement of a restatement an additional penalty in the form of less money to spend to polish up their image.

The results of this paper showed that audit fees of restating companies are larger in the year of the announcement of the accounting restatement than audit fees of non-restating companies due to the extra work and the extra engagement risk. Concerning the persistence of the auditor's reaction, we reported that the level of the audit fees of restating companies is not significantly smaller in the year before the restatement announcement and in the two years after the restatement announcement than in the year of the restatement announcement. Since the interaction variables are not significant, the main effect counts for the four years around the restatement announcement; the audit fees of restating companies are larger than the audit fees of non-restating companies during

four years around the restatement announcement. When testing the persistent effect of the increase in the audit fee after a restatement announcement by introducing interaction variables in our model, we indicate that the more work for the auditor argument only works in the short run and that there is a longer run impact due to the increase in the engagement risk.

This paper contributes to the existing international literature by investigating the auditor's reaction after the announcement of a restatement, specified by reason and initiator. We found that audit fees of SEC initiated or auditor initiated restating companies are larger in the year of the restatement announcement than audit fees of company initiated restating companies. We indicated that the audit fees of companies with restatements due to improper cost accounting or improper revenue recognition are significantly higher in the year of the restatement announcement than the audit fees of companies with restatements due to problems with non-core items.

This study is also subjected to several limitations. The manual collection of some variables and the public availability of audit fee data played a crucial role in the small sample size. We collected data for a period of four years. Future studies could expand the time table to get a more detailed view of the persistence of the auditor's reaction. Other ideas for further research include the contagion effect of the restating firm on the level of audit fees of companies in the portfolio of the incumbent auditor and on the level of audit fees of companies in the same industry, and the introduction of an appropriate instrumental variable for the RESTATE variable in the regression model to deal with the potentially biased results due to endogeneity problems.

In a third chapter, we tested the internal corporate governance quality, measured by some board and audit committee characteristics, of which the size is not imposed by any legal rules, and the accrual quality of restating and non-restating companies during a period of seven years, starting in the third year before the restatement announcement till the third year after the announcement of the accounting restatement. Furthermore, we examined the influence of strong corporate governance on earnings management in those firms during the specified seven year time window. Most prior literature (e.g., Moore and Pfeiffer (2004), Graham et al. (2006)) investigating market and accounting consequences in a long time window after the restatement announcement uses a sample of only restating firms. We, on the other hand, will use a matched pair design in this study. Further, this research contributes to the literature of earnings management and the role of corporate governance (e.g., Carcello et al. (2006), Bowen et al. (2004), Becker et al. (1998), Menon and Williams (2004), Klein (2002)) by adding the restatement announcement characteristic. The findings of this study help investors to make more founded decisions, as well as, the policy maker to notice if the creation of an artificial framework, where the influence of strong internal corporate governance on earnings persistence is always good, is necessary. Further, the firm itself benefits

from this research. The firm gets an idea whether the announcement of an accounting restatement has a positive consequence, namely the efficacy of internal corporate governance on earnings management increases.

We reported that the internal corporate governance as a whole is better for restating firms than for non-restating firms during the seven years around the restatement announcement, especially during the year of and the first and the second year after the restatement announcement. In the third year after the restatement announcement there is no significant difference between restating and non-restating firms concerning the internal corporate governance characteristics. Further, we indicated in the univariate results that the absolute value of abnormal working capital accruals does not significantly differ between restating and non-restating companies during each of the seven years around the announcement of a restatement.

The results noticed no time effect during the seven year time window around the announcement of an accounting restatement, in the efficacy of strong internal corporate governance on earnings management for both restating companies. The results indicated an insignificant association between strong internal corporate governance and earnings management during the period of seven years for non-restating firms. The results stay the same when controlling for endogeneity.

There are a number of limitations associated with this study. Consistent with the two other papers, the small sample size is also one of the main restrictions in the third paper. Second, we focus on only one accounting based measure of earnings quality, future research could include other accounting based measures, but also market based measures of earnings quality. Finally, the number of governance characteristics in the internal corporate governance index is very limited, and we did not pay any attention to restatement characteristics in this research.

To conclude, in this dissertation we investigated some consequences of announcing an accounting restatement. In particular, we reported the impact of a restatement announcement on the cost of public debt, the audit fees, and the influence of strong internal corporate governance on earnings management. The results showed that the cost of public debt and the audit fees increase after a restatement announcement and therefore should be considered as a cost. The influence of strong internal corporate governance on earnings management should not be considered as a benefit, as strong internal corporate governance does not work significantly more efficient in restating firms in the years after the restatement announcement than in the years before the restatement announcement. Companies have to take these benefit (not existing) and costs into account before starting to manipulate the financial statements, which can result in a possible discovery of this incorrect behaviour.

APPENDICES

APPENDIX 1.A: Correlation matrix

	CAC7	PERVASIV	MATERIAL	PERSIST	ANNFIL	POSNEG	RATING	SIZE	LEV	ROA
CAC7	1.00									
PERVASIV	0.21	1.00								
MATERIAL	0.36	-0.05	1.00							
PERSIST	-0.01	0.20	-0.15	1.00						
ANNFIL	0.07	0.11	-0.11	0.09	1.00					
POSNEG	0.19	0.15	0.59	0.17	0.07	1.00				
RATING	-0.33	-0.16	-0.20	-0.09	-0.09	-0.03	1.00			
SIZE	-0.04	-0.04	0.10	-0.03	-0.25	0.22	0.19	1.00		
LEV	0.28	0.15	0.43	0.30	-0.31	0.33	-0.35	0.10	1.00	
ROA	-0.43	-0.25	-0.53	-0.15	0.12	-0.39	0.33	-0.01	-0.42	1.00

Where CAC7 = announcement effect on bond prices during a time period of 3 days before till 3 days after the announcement of a restatement = $\sum$ (daily bondholders' reaction – daily reaction on a Treasury bond with corresponding maturity); PERVASIV = the number of account groups involved in the restatement on the maximum number of account groups involved in the restatement (the minimum number of accounting groups involved in our sample is one and the maximum number of accounting groups involved in our sample is three); MATERIAL = the originally reported net income (loss) (summed over all restated periods) less restated net income (loss) (summed over all restated periods) scaled by total assets; PERSIST = the sum of the quarters restated, where each quarter is 0.25; ANNFIL = 1 if the announcement of the restatement includes not the exact quantification of the materiality of the restatement, 0 otherwise; POSNEG = 1 if the restatement is the correction of an overstatement, 0 otherwise; RATING = Standard & Poors' rating of the firm's outstanding traded debt at the announcement date of the restatement; AAA=16, AA+=15, AA-=14,…, CCC-=4, CC=3, C=2, D=1; SIZE = natural logarithm of total assets, measured at year end before the announcement of the restatement; LEV = total liabilities on total assets, measured at year end before the announcement of the restatement; ROA = net income on total assets, measured at year end before the announcement of the restatement;

APPENDIX 2.A: Correlation matrix

	LNFEES	RESTATE	YEAR-1	YEAR1	YEAR2	SIZE	LEV	LOSS	REC/TA	INV/TA
LNFEES	1.00									
RESTATE	0.13	1.00								
YEAR-1	-0.12	0.00	1.00							
YEAR1	0.01	0.00	-0.24	1.00						
YEAR2	0.15	0.00	-0.24	-0.42	1.00					
SIZE	0.81	0.01	-0.02	0.00	0.02	1.00				
LEV	0.23	0.04	-0.17	0.04	0.03	0.19	1.00			
LOSS	-0.03	0.05	-0.05	0.04	0.02	-0.14	0.02	1.00		
REC/TA	-0.05	0.06	-0.01	-0.01	0.02	-0.20	0.09	0.04	1.00	
INV/TA	-0.12	-0.02	-0.01	-0.01	0.01	-0.16	-0.01	-0.11	0.13	1.00
LNNAF	0.54	0.07	0.06	-0.01	-0.05	0.54	0.15	-0.01	-0.05	-0.15
SQRTSUBS	0.69	0.08	-0.01	-0.01	0.01	0.67	0.23	-0.07	0.01	-0.09
FOREIGN	0.25	0.04	-0.05	0.01	0.02	0.06	-0.06	0.09	0.13	0.03
ROA	0.11	-0.05	0.01	-0.02	0.09	0.24	0.06	-0.34	0.10	0.16
BIG5	0.28	-0.03	0.01	-0.01	-0.06	0.34	0.01	-0.02	-0.08	-0.13
SWITCH	-0.09	0.07	-0.01	0.01	-0.10	-0.14	0.05	0.02	0.07	-0.01
ABSDACC	-0.06	-0.03	0.06	-0.05	-0.03	-0.19	-0.06	0.23	-0.04	-0.15
PERIOD1	-0.01	0.00	-0.24	0.34	-0.42	0.00	0.05	0.01	-0.01	-0.01
PERIOD2	0.06	0.00	-0.24	0.25	0.34	0.01	0.04	0.06	0.01	-0.01
PERIOD3	0.13	0.00	-0.15	-0.26	0.62	-0.02	-0.13	-0.02	-0.02	0.00

	LNNAF	SQRTSUBS	FOREIGN	ROA	BIG5	SWITCH	ABSDACC	PERIOD1	PERIOD2	PERIOD3
LNFEES										
RESTATE										
YEAR-1										
YEAR1										
YEAR2										
SIZE										
LEV										
LOSS										
REC/TA										
INV/TA										
LNNAF	1.00									
SQRTSUBS	0.45	1.00								
FOREIGN	0.24	0.18	1.00							
ROA	0.08	0.15	-0.06	1.00						
BIG5	0.36	0.20	0.09	0.02	1.00					
SWITCH	-0.16	-0.05	-0.03	-0.04	-0.19	1.00				
ABSDACC	-0.03	-0.11	0.09	-0.39	-0.09	0.10	1.00			
PERIOD1	-0.01	0.00	0.02	-0.06	0.02	0.14	-0.01	1.00		
PERIOD2	-0.03	0.01	0.02	0.05	-0.02	-0.10	-0.07	-0.42	1.00	
PERIOD3	-0.08	0.00	-0.05	0.04	-0.11	-0.04	0.11	-0.26	-0.26	1.00

Where LNFEES = natural logarithm of audit fees; RESTATE = 1 if the firm announces a restatement, 0 otherwise; YEAR-1 = 1 if the variables (restating companies + matched sample) consider 1 year before announcement, 0 otherwise; YEAR1 = 1 if the variables (restating companies + matched sample) consider 1 year after announcement, 0 otherwise; YEAR2 = 1 if the variables (restating companies + matched sample) consider 2 years after announcement, 0 otherwise; SIZE = natural logarithm of total assets; LEV = total liabilities on total assets; LOSS = 1 if the firm reports a loss in any of the three previous fiscal years, 0 otherwise; REC/TA = accounts receivable on total assets; INV/TA = inventory on total assets; LNNAF = natural logarithm of all non-audit fees; SQRTSUBS = the square root of the number of consolidated subsidiaries; FOREIGN = percentage of subsidiaries incorporated in countries other than the U.S.; ROA = net income on total assets; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; SWITCH = 1 if

the firm has a different external auditor than last year, 0 otherwise; ABSDACC = absolute value of discretionary accruals (DACC is calculated according to the DeAngelo model); PERIOD1 = 1 if the variables consider fiscal year 2002, 0 otherwise; PERIOD2 = 1 if the variables consider fiscal year 2003, 0 otherwise; PERIOD3 = 1 if the variables consider fiscal year 2004, 0 otherwise;

APPENDIX 3.A: Correlation matrix

Panel A: Restaters

	INTGOV	BIG5	LEV	MB	SIZE	PERF1	AAWCA	t-3	t-2	t-1	t1	t2	t3
INTGOV	1.00												
BIG5	-0.03	1.00											
LEV	0.04	0.09	1.00										
MB	0.02	0.01	0.04	1.00									
SIZE	-0.15	0.44	0.18	0.04	1.00								
PERF1	-0.06	-0.02	-0.57	0.02	0.13	1.00							
AAWCA	0.00	0.12	0.10	0.00	0.45	0.02	1.00						
t-3	0.18	0.00	0.02	-0.01	-0.07	-0.12	-0.05	1.00					
t-2	-0.09	0.00	-0.02	-0.01	-0.01	0.01	-0.02	-0.17	1.00				
t-1	-0.09	0.00	-0.01	-0.01	0.01	0.02	0.01	-0.17	-0.17	1.00			
t1	-0.04	0.00	0.01	-0.02	0.01	0.02	0.00	-0.17	-0.17	-0.17	1.00		
t2	-0.01	0.00	0.00	-0.01	0.02	0.02	0.07	-0.17	-0.17	-0.17	-0.17	1.00	
t3	-0.07	0.00	0.01	-0.01	0.03	0.02	-0.03	-0.17	-0.17	-0.17	-0.17	-0.17	1.00

Panel B: Non-Restaters

	INTGOV	BIG5	LEV	MB	SIZE	PERF1	AAWCA	t-3	t-2	t-1	t1	t2	t3
INTGOV	1.00												
BIG5	-0.09	1.00											
LEV	-0.08	0.16	1.00										
MB	0.01	0.02	-0.11	1.00									
SIZE	-0.25	0.41	0.29	-0.01	1.00								
PERF1	-0.04	-0.05	-0.01	0.04	0.21	1.00							
AAWCA	-0.05	0.14	0.15	-0.02	0.43	0.02	1.00						
t-3	0.00	0.00	0.02	-0.08	-0.08	-0.05	0.00	1.00					
t-2	-0.01	0.00	-0.02	0.06	-0.02	-0.03	-0.02	-0.17	1.00				
t-1	-0.01	0.00	0.01	0.03	0.00	0.00	0.00	-0.17	-0.17	1.00			
t1	0.02	0.00	-0.02	-0.01	0.01	0.02	0.02	-0.17	-0.17	-0.17	1.00		
t2	-0.04	0.00	0.00	0.00	0.03	0.03	-0.03	-0.17	-0.17	-0.17	-0.17	1.00	
t3	-0.01	0.00	0.00	0.00	0.04	0.04	0.01	-0.17	-0.17	-0.17	-0.17	-0.17	1.00

Where INTGOV = 1 if the firm has strong internal governance, 0 otherwise; BIG5 = 1 if the firm has a Big5 auditor, 0 otherwise; LEV = total liabilities on total assets; MB = market value of equity divided by book value; SIZE = natural logarithm of total assets; PERF1 = cash flow from operations scaled by the beginning of the year total assets; AAWCA = absolute value of abnormal working capital accruals; t-3 = 1 if the variables (restating companies + matched sample) consider 3 years before restatement, 0 otherwise; t-2 = 1 if the variables (restating companies + matched sample) consider 2 years before restatement, 0 otherwise; t-1 = 1 if the variables (restating companies + matched sample) consider 1 year before restatement, 0 otherwise; t1 = 1 if the variables (restating companies + matched sample) consider 1 year after restatement, 0 otherwise; t2 = 1 if the variables (restating companies + matched sample) consider 2 years after restatement, 0 otherwise; t3 = 1 if the variables (restating companies + matched sample) consider 3 years after restatement, 0 otherwise;

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Abbott, L.J., Parker, S., Peters, G.F. (2004), Audit committee characteristics and restatements, *Auditing* Vol. 23, 69-87.

Abdel-Khalik, A.R. (1986), Client size, loss-of-control, and discretionary demand for auditing, *Working paper*, University of Florida, Accounting Research Center.

Agrawal, A., Chadha, S. (2005), Corporate Governance and accounting scandals, *Journal of Law and Economics* Vol. 48, 371-406.

American Institute of Certified Public Accountants (AICPA) (1983), Audit risk and materiality in conducting an audit, *Statement of Auditing Standards* No. 47, AICPA New York.

Anderson, K.L., Yohn, T.L. (2002), The effect of 10K restatements on firm value, information asymmetries, and investors' reliance on earnings, *Working paper*, Georgetown University.

Anderson, R.C., Mansi, S.A., Reeb, D.M. (2003), Founding family ownership and the agency cost of debt, *Journal of Financial Economics* Vol. 68, 263-287.

Anderson, R.C., Mansi, S.A., Reeb, D.M. (2004), Board characteristics, accounting report integrity, and the cost of debt, *Journal of Accounting and Economics* Vol. 37, 315-342.

Anderson, S., Beard, R., Born, J. (1994), Initial public offerings: findings and theories, Kluwer Academic Publishers, Boston, MA.

Ashbaugh, H., LaFond, R., Mayhew, B. (2003), Do non-audit services compromise auditor independence? Further evidence, *The Accounting Review* Vol. 78, 611-639.

Baber, W.R., Kang, S.-H., Liang, L. (2007), Shareholder rights, corporate governance and accounting restatements, *Working Paper*, The George Washington University.

Balachandran, B.V., Simon, D. (1993), Audit services and fees of large accounting firms, *Journal of Economics and Management Strategy* Vol. 2, 339-348.

Balsam, S., Bartov, E., Yin, J. (2006), Disclosure versus recognition of option expense: an empirical investigation of SFAS No. 148 and stock returns, *Working paper*, Temple University Philadelphia, New York University and University of Texas.

Barkness, L., Simnett, R. (1994), The provision of other services by auditors: independence and pricing issues, *Accounting and Business Research* Vol. 24, 99-108.

Beasley, M.S. (1996), An empirical analysis of the relation between the board of director composition and financial statement fraud, *Accounting Review* Vol.71, 443-465.

Becker, C., DeFond, M., Jiambalvo, J., Subramanyam, K. (1998), The effect of audit quality on earnings management, *Contemporary Accounting Research* Vol. 15, 1-24.

Bedard, J.C., Hoitash, U., Hoitash, R. (2006), Audit pricing and internal control disclosures among non-accelerated filers, *Working paper*, Suffolk University, Rutgers University and Bentley College.

Bell, T., Landsman, W., Shackelford, D. (2001), Auditors' perceived business risk and audit fees: analysis and evidence, *Journal of Accounting Research* Vol. 39, 35-43.

Beneish, M.D. (1999), Incentives and penalties related to earnings overstatements that violate GAAP, *Accounting Review* Vol.74, 425-458.

Billings, B.K. (1999), Revisiting the relation between the default risk of debt and the earnings response coefficient, *The Accounting Review* Vol. 74, 509-522.

Blue Ribbon Committee (1999), Report and recommendations of the Blue Ribbon Committee on improving the effectiveness of corporate audit committees, New York Stock Exchange end National Association of Securities Dealers.

Botosan, C.A., Plumlee, M. (2002), A re-examination of disclosure level and the expected cost of equity capital, *Journal of Accounting Research* Vol. 40, 21-40.

Bowen, R.M., Rajgopal, S., Venkatachalam, M. (2004), Accounting discretion, corporate governance and firm performance, *Working Paper*, University of Washington and Duke University.

Burks, J.J. (2007), Sarbanes-Oxley and the effect of restatements on CEO and CFO compensation and turnover, *Working paper*, University of Iowa.

Bushman, R., Chen, Q., Engel, E., Smith, A. (2004), Financial accounting information, organizational complexity and corporate governance systems, *Journal of Accounting and Economics* Vol. 37, 167-201.

Callaghan, J.H., Parkash, M., Singhal, R. (2008), The impact of the multi-jurisdiction disclosure system on audit fees of cross-listed Canadian firms, *The International Journal of Accounting* Vol. 43, 99-113.

Callen, J.L., Livnat, J., Segal, D. (2002), Accounting restatements: are they always bad news?, *Working paper*, University of Toronto and New York University.

Carcello, J.V., Hollingsworth, C.W., Klein, A., Neal, T.L. (2006), Audit committee financial expertise, competing corporate governance mechanisms, and earnings management, Working Paper, University of Tennessee and New York University.

Chatterjee, S., Dhillon, U.S., Ramirez, G.G. (2004), Debtor-in-possession financing, *Journal of Banking and Finance* Vol. 28, 3097-3111.

Chen, L., Lesmond, D.A., Wei, J.Z. (2003), Corporate bond liquidity and its effect on bond yield spreads, *Working paper*, Michigan State University, Tulane University and University of Toronto.

Cheng, Q., Farber, D.B. (2006), Earnings restatements, changes in CEO compensation, and firm performance, *Working paper*, University of British Columbia and University of Missouri-Columbia.

Colbert, J.L., Luehlfing, M.S., Alderman, C.W. (2006), Auditing – Engagement risk, *The CPA Journal.*

Collins, D., Reitenga, A.L., Sanchez, J.M. (2005), The managerial consequences of earnings restatements, *Working paper,* University of Memphis, University of Alabama and University of Arkansas.

Core, J.E., Holthausen, R.W., Larcker, D.F. (1999), Corporate governance, chief executive officer compensation, and firm performance, *Journal of Financial Economics* Vol. 51, 371-406.

Cornil, A. (2008a), The impact of accounting restatements on firm's cost of public debt, *Working paper*, Catholic University Leuven.

Cornil, A. (2008b), Financial Reporting Quality and Incumbent Audit Fees: Evidence from Accounting Restatements, *Working paper*, Catholic University Leuven.

Craswell, A. (1999), Does the provision of non-audit services impair independence?, *International Journal of Auditing* Vol. 3, 29-40.

Craswell, A.T., Francis, J.R., Taylor, S.L. (1995), Auditor brand name reputations and industry specializations, *Journal of Accounting and Economics* Vol. 20, 297-322.

Datta, S., Dhillon, U.S. (1993), Bond and stock market response to unexpected earnings announcements, *Journal of Financial and Quantitative Analysis* Vol. 28, 565-577.

Datta, S., Iskandar-Datta, M. (1995), The information content of bankruptcy filing on securityholders of the bankrupt firm: an empirical investigation, *Journal of Banking and Finance* Vol. 19, 903-919.

Davis, L., Ricchiute, D., Trompeter, g. (1993), Audit effort, audit fees, and the provision of non-audit services to audit clients, *The Accounting Review* Vol.68, 135-150.

de Andres, P., Azofra, V., Lopez, F. (2005), Corpoate boards in OECD countries: size, composition, functioning and effectiveness, *Corporate Governance: an International Review* Vol. 13, 197-210.

DeAngelo, L; (1986), Accounting numbers as market value substitutes: a study of managerial buyouts of public stockholders, *The Accounting Review*, 400-420.

DeBerg, C., Kaplan, L., Pany, K. (1991), An examination of some relationships between non-audit services and auditor change, *Accounting Horizons* Vol. 5, 17-28.

Dechow, P., Dichev, I. (2002, The quality of accruals and earnings: the role of accrual estimation errors, *The Accounting Review* Vol. 77, 35-59.

Dechow, P.M., Sloan, R.G., Sweeney, A.P. (1995), Detecting earnings management, *Accounting Review* Vol.70, 193-225.

Dechow, P.M., Sloan, R.G., Sweeney, A.P. (1996), Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC, *Contemporary Accounting Research* Vol. 13, 1-36.

DeFond, M.L., Jiambalvo, J. (1991), Incidence and circumstances of accounting errors, *The Accounting Review* Vol. 66, 643-655.

DeFond, M.L., Hann, R.N., Hu, X. (2005), Does the market value financial expertise on audit committees of board of directors?, *Journal of Accounting Research* Vol. 43, 153-193.

DeFond, M.L., Park, C.W. (2001), The reversal of abnormal accruals and the market valuation of earnings surprises, *The Accounting Review* Vol. 76, 375-404.

Desai, H., Rajgopal, S., Venkatachalam, M. (2004), Value-glamour and accruals mispricing : one anomaly or two?, *The Accounting Review* Vol. 79, 355-385.

Desai, H., Hogan, C.E., Wilkins, M.S. (2006), The reputational penalty for aggressive accounting: earnings restatements and management turnover, *The Accounting Review* Vol. 81, 83-112.

Dhaliwal, D.S., Lee, K.J., Fargher, N.L. (1991), The association between unexpected earnings and abnormal security returns in the presence of financial leverage, *Contemporary Accounting Research* Vol. 8, 20-41.

Dhaliwal, D.S., Reynolds, S.S. (1994), The effect of the default risk of debt on the earnings response coefficient, *The Accounting Review* Vol. 69, 412-419.

Dowdell, T.D., Press, E. (2004), The impact of SEC scrutiny on financial statement reporting of in-process research and development expense, *Journal of Accounting and Public Policy* Vol. 23, 227-244.

Dunne, P., Falk, H., Forker, J., Powell, R. (2008), The market response to information quality shocks: the case of Enron, *Applied Financial Economics* Vol. 18, 1051-1066.

Dutordoir, M., Van de Gucht, L. (2004), Are European convertibles more debt-like than the U.S. issues? An empirical analysis, *Tijdschrift voor Economie en Management* Vol. 49, 533-568.

Efendi, J., Kinney, M., Swanson, E. (2005), Can short sellers anticipate accounting restatements?, *Working paper*, California Polytechnic State University and Texas A&M University.

Eisenberg, T., Sundgren, S., Wells, M. (1998), Larger board size and decreasing firm value in small firms, *Journal of Financial Economics* Vol. 48, 35-54.

El-Gazzar, S.M. (1998), Predisclosure information and institutional ownership: a cross-sectional examination of market revaluations during earnings announcement periods, *The Accounting Review* Vol. 73, 119-129.

Fabozzi, F.J. (2004), Bond markets, analysis, and strategies, 5th edition, Pearson Education International, Prentice Hall, NJ.

Farber, D.B. (2005), Restoring trust after fraud: does corporate governance matter?, *The Accounting* Review Vol. 80, 539-561.

Fargher, N., Taylor, M.H., Simon, D.T. (2001), The demand for auditor reputation across international markets for audit services, *International Journal of Accounting* Vol. 36, 407-422.

Feroz, E.H., Park, K., Pastena, V.S. (1991), The financial and market effects of the SEC's accounting and auditing enforcement releases, *Journal of Accounting Research* Vol. 29, 107-142.

Ferris, S.P., Jayaraman, N., Makhija, A.K. (2001), The impact of chapter 11 filings on the risk and return of securityholders, 1979-1989, *Advances in Financial Economics* Vol. 2.

Fich, E.M., Shivdasani, A. (2005), The impact of stock-option compensation for outside directors on firm value, *Journal of Business* Vol. 78, 2229-2254.

Financial restatements: trends, market impacts, regulatory responses, and remaining challenges, general accounting office report to the chairman, senate committee on banking, housing & urban affairs, GAO-03-138 (October 2002).

Firth, M.(1990), Auditor reputation: the impact of critical reports issued by government inspectors, *RAND Journal of Economics* Vol. 21, 374-387.

Francis, J. (1984), The effect of audit firm size on audit prices: a study of the Australian market, *Journal of Accounting and Economics* Vol. 6, 133-151.

Francis, J., LaFond, R., Olsson, P.M., Schipper, K. (2004), Cost of equity and earnings attributes, *The Accounting Review* Vol. 79, 967-1010.

Francis, J., LaFond, R., Olsson, P.M., Schipper, K. (2005), The market pricing of accruals quality, *Journal of Accounting and Economics* Vol. 39, 295-327.

Francis, J., Maydew, E., Sparks, H. (1999), The role of Big 6 auditors in the credible reporting of accruals, *Auditing: a Journal of Practice & Theory* Vol. 18, 17-34.

Francis, J.R., Simon, D.T. (1987), A test of audit pricing in the small-client segment of the US audit market, *The Accounting Review* Vol.62, 145-157.

Frankel, R.M., Johnson, M.F., Nelson, K.K. (2002), The relation between auditors' fees for non-audit services and earnings quality, *The Accounting Review* Vol. 77, 71-105.

Freeman, R.N. (1987), The association between accounting earnings and security returns for large and small firms, *Journal of Accounting and Economics* Vol. 9, 195-228.

Gleason, C.A., Jenkins, N.T., Johnson, W.B. (2004), Financial statement credibility: the contagion effects of accounting restatements, *Working paper*, University of Iowa and Washington University.

Gongmeng, C., Firth, M., Gao, D.N., Rui, O.M. (2006), Ownership structure, corporate governance, and fraud: evidence from China, *Journal of Corporate Finance* Vol. 12, 424-448.

Graham, J.R., Li, S., Qiu, J. (2006), Corporate misreporting and bank loan contracting, *Working paper*, Duke University, Wilfrid Laurier University and McMaster University.

Gregory, A., Collier, P. (1996), Audit fees and auditor change; an investigation of the persistence of fee reduction by type of change, *Journal of Business Finance and Accounting* Vol. 23, 13-28.

Griffin, P.A. (2003), A league of their own? Financial analysts' responses to restatements and corrective disclosures, *Working paper*, University of California.

Gul, F.A., Tsui, J.S.L. (1997), A test of the free cash flow and debt monitoring hypotheses: evidence from audit pricing, *Journal of Accounting and Economics* Vol. 24, 219-237.

Hackenbrack, K., Knechel, R. (1997), Resource allocation decisions in audit engagements, *Contemporary Accounting Research* Vol. 14, 481-499.

Hand, J.R.M., Holthausen, R.W., Leftwich, R.W. (1992), The effect of bond rating agency announcements on bond and stock prices, *Journal of Finance* Vol. 47, 733-752.

Hansen, S.C. (1997), Designing internal controls: the interaction between efficiency wages and monitoring, *Contemporary Accounting Research* Vol. 14, 129-163.

Helland, E., Sykuta, M. (2005), Who's monitoring the monitor? Do outside directors protect shareholders' interests?, *Financial Review* Vol. 40, 155-172.

Hennes, K.M., Leone, A.J., Miller, B.P. (2007), Management intent and CEO and CFO turnover around earnings restatements: evidence from the post-Enron era, *Working paper*, Pennsylvania State University.

Hermalin, B., Weisbach, M. (1998), Endogenously chosen boards of directors and their monitoring of the CEO, *American Economic Review* Vol. 88,96-118.

Hirschey, M., Palmrose, Z.V., Scholz, S. (2003), Long-term market underreaction to accounting restatements, *Working paper*, University of Kansas and University of Southern California.

Hogan, C.E., Wilkins, M.S. (2007), Evidence on the audit risk model: do auditors increase audit fees in the presence of internal control deficiencies?, *Working paper*, Michigan State University, Texas A&M University.

Hoitash, R., Hoitash, U., Bedard, J.C. (2007), Internal control quality and audit pricing under the Sarbanes-Oxley Act, *Working paper*, Suffolk University, Rutgers University and Bentley College.

Hribar, P., Jenkins, N.T., Wang, J. (2004), Institutional investors and accounting restatements, *Working paper*, Cornell University and Washington University in St. Louis.

Hribar, P., Jenkins, N.T. (2006), The effect of accounting restatements on earnings revisions and the estimated cost of capital, *Review of Accounting Studies* Vol. 9, 337-356.

Huron Consulting Group (2005), 2004 Annual review of financial reporting matters.

Hutton, P., Miller, G.S., Skinner, D.J. (2003), The role of supplementary statements with management earnings forecasts, *Journal of Accounting Research* Vol. 41, 867-890.

Impson, M. (1997), Market reaction to dividend-decrease announcements: public utilities vs. unregulated industrial firms, *The Journal of Financial Research* Vol. 20, 407-422.

Janin, R. (2000), Accrual-based models for detecting earnings management and the French case, *Working paper*, Université Joseph Fourier Grenoble.

Jones, J. (1991), Earnings management during import relief investigations, *Journal of Accounting Research* Vol. 29, 193-228.

Jones, E., Danbolt, J., Hirst, I. (2004), Company investment announcements and the market value of the firm, *European Journal of Finance* Vol. 10, 437-452.

Kam, C.D., Franzese, R.J.Jr. (2005), Modeling and interpreting interactive hypotheses in regression analysis: a refresher and some practical advice, *Working paper*, University of California and University of Michigan.

Kedia, S. (2003), Do executive stock options generate incentives for earnings management? Evidence from accounting restatements, *Working paper*, Harvard Business School.

Kinney, W.R.Jr., McDaniel, L.S. (1989), Characteristics of firms correcting previously reported quarterly earnings, *Journal of Accounting & Economics* Vol. 11, 71-93.

Kinney, J.W.R., Palmrose, Z.V., Scholz, S. (2004), Auditor Independence, Non-Audit Services, and Restatements: Was the U.S. Government Right?, *Journal of Accounting Research* Vol. 42, 561-589.

Klein, A. (2002), Audit committee, board of director characteristics, and earnings management, *Journal of Accounting and Economics* Vol. 33, 375-400.

Kreutzfeldt, R., Wallace, W. (1986), Error characteristics in audit populations: their profile and relationship to environmental factors, *Auditing: a Journal of Practice and Theory* Vol. 6, 20-43.

Krishnan, G.V. (2003), Does Big 6 auditor industry expertise constrain earnings management?, *Accounting Horizons* Vol. 17, 1-16.

Larcker, D.F., Richardson, S.A. (2004), Corporate governance, fees for non-audit services and accrual choices, *Journal of Accounting Research* Vol. 42, 625-658.

Lazer, R., Livnat, J., Tan, C.E.L. (2004), The quality of financial reports after auditor change evidence from restatements and accruals, *Working Paper*, New York University and Baruch College - CUNY.

Levitt, A. (1998), The numbers game; remarks by chairman Arthur Levitt Securities and Exchange Commission, Delivered at the NYU Center for Law and Business New York, NY.

Li, O.Z., Zhang, Y. (2006), Financial restatement announcements and insider trading, *Working paper*, University of Notre Dame and Colombia University.

Lyon, J.D., Maher, M.W. (2005), The importance of business risk in setting audit fees: evidence from cases of client misconduct, *Journal of Accounting Research* Vol. 43, 133-151.

Magee, R., Tseng, M. (1990), Audit pricing and independence, *The Accounting Review* Vol. 65, 315-336.

Mak, Y.T., Kusnadi, Y. (2005), Size really matters: further evidence on the negative relationship between board size and firm value, *Pacific-Basin Finance Journal* Vol. 13, 301-318.

Mansi, S.A., Maxwell, W.F., Miller, D.P. (2004), Does auditor quality tenure matter to investors? Evidence from the bond market, *Journal of Accounting Research* Vol.42, 755-793.

Masulis, R.W. (1980), The effects of capital structure change on security prices: a study of exchange offers, *Journal of Financial Economics* Vol. 8, 139-177.

Maxwell, W.F., Rao, R.P. (2003), Do spin-offs expropriate wealth from bondholders?, *The Journal of Finance* Vol. 58, 2087-2108.

Maxwell, W.F., Stephens, C.P. (2003), The wealth effects of repurchases on bondholders, *The Journal of Finance* Vol. 58, 895-919.

McClure, B. (2002), Earnings: quality means everything, *Investopedia.com*.

Menon, G., Williams, D. (2004), Former audit partners and abnormal accruals, *The Accounting Review* Vol. 79, 1095-1118.

Michaely, R., Shaw, W.H. (1995), Does the choice of auditor convey quality in an initial public offering?, *Financial Management* Vol. 24.

Moore, E.A., Pfeiffer, R.J.Jr. (2004), The effects of financial statement restatements on firms' financial reporting strategies, *Working paper*, University of Massachusetts.

Moriarty, G.B., Livingston, P.B. (2001), Quantitative measures of the quality of financial reporting, *Financial Executive* Vol. 17, 53-56.

Myers, J.N., Myers L.A., Palmrose, Z.V., Scholz, S. (2003), Mandatory auditor rotation: evidence from restatements, *Working paper*, University of Illinois at Urbana-Champaign, University of Southern California and University of Kansas.

Nikolaev, V., van Lent, L. (2005), The endogeneity bias in the relation between cost of debt capital and corporate disclosure policy, *Working paper*, Tilburg University.

O'Keefe, T.B., Simunic D.A., Stein, M.T. (1994), The production of audit services: evidence from a major public accounting firm, *Journal of Accounting Research* Vol. 32, 241-261.

Palmrose, Z.V., Richardson, V.J., Scholz, S. (2004), Determinants of market reactions to restatement announcements, *Journal of Accounting & Economics* Vol. 37, 59-89.

Palmrose, Z.V., Scholz, S., Wahlen J.M. (2004), The circumstances and legal consequences of non-GAAP reporting: evidence from restatements, *Contemporary Accounting Research* Vol. 21, 139-190.

Penas, M.F., Unal, H. (2004), Gains in bank mergers: evidence from the bond markets, *Journal of Financial Economics* Vol. 74, 149-179.

Raghunandan, K., Read, William J., Whisenant, J. Scott (2003), Initial evidence on the association between nonaudit fees and restated financial statements, *Accounting Horizons* Vol.17, No.3, 223-234.

Reeb, D.M., Mansi, S.A., Allee, J.M. (2001), Firm internationalization and the cost of debt financing: evidence from non-provisional publicly traded debt, *Journal of Financial and Quantitative* Analysis Vol. 36, 395-414.

Reynolds, J.K., Francis, J.R. (2000), Does size matter? The influence of large clients on office-level auditor reporting decisions, *Journal of Accounting and Economics* Vol. 30, 375-400.

Richardson, S. (2003), Earnings surprise and short selling, *Accounting Horizons* Vol. 17, 49-61.

Richardson, S., Tuna, I., Wu, M. (2002), Predicting earnings management: the case of earnings restatements, *Working paper*, University of Pennsylvania and Hong Kong University of Science and Technology.

Rogers, W. (1993), Regression standard errors in clustered samples, *Stata Technical Bulletin* Vol. 13, 19-23.

Rosenstein, S., Wyatt, J.G. (1997), Outside directors, board effectiveness, and shareholder wealth, *Journal of Financial Economics* Vol. 44, 229-250.

Sarbanes-Oxley Act of 2002.

Schelleman, C., Deumes, R., Finkeldei, M. (2007), SOX 404 related audit fees and their determinants, *Working Paper*, Maastricht University and Ernst & Young.

Seetharaman, A., Gul, F.A., Lynn, S.G. (2002), Litigation risk and audit fees: evidence from UK firms cross-listed on US market, *Journal of Accounting and Economics* Vol. 33, 91-115.

Sengupta (1998), Corporate disclosure quality and the cost of debt, *Accounting Review* Vol. 73, 459-474.

Sharma, V.D. (2004), Board of director characteristics, institutional ownership, and fraud: evidence from Australia, A*uditing: a Journal of Practice & Theory* Vol. 23, 105-117.

Shi (2003), On the trade-off between the future benefits and the riskiness of R&D: a bondholders' perspective, *Journal of Accounting and Economics* Vol. 35, 227-254.

Simunic, D.A. (1980), The pricing of audit services: theory and evidence, *Journal of Accounting Research* Vol. 18, 161-190.

Simunic, D.A. (1984), Auditing, consulting, and auditor independence, *Journal of Accounting Research* Vol. 22, 679-702.

Simunic, D.A., Stein, M.T. (1996), Impact of litigation risk on audit pricing: a review of the economics and the evidence, *Auditing: a Journal of Practice and Theory* Vol. 15, 119-134.

Skinner, D.J. (1994), Why firms voluntarily disclose bad news, *Journal of Accounting Research* Vol. 32, 38-60.

Sloan, R. (1996), Do stock prices fully reflect information in accruals and cash flows about future earnings?, *The Accounting Review* Vol. 71, 289-315.

Srinivasan, S. (2005), Consequences of financial reporting failure for outside directors: evidence from accounting restatements and audit committee members, *Journal of Accounting Research* Vol. 43, 291-334.

Stanley, J.D., DeZoort, F.T. (2007), Audit firm tenure and financial restatements: an analysis of industry specialization and fee effects, *Journal of Accounting and Public Policy* Vol. 26, 131-159.

Summers, S.L., Sweeney, J.T. (1998), Fraudulently misstated financial statements and insider trading: an empirical analysis, *Accounting Review* Vol.73, 131-146.

Taylor, M.H., Simon, D.T. (1999), Determinants of audit fees: the importance of litigation, disclosure, and regulatory burdens in audit engagement in 20 countries, *International Journal of Accounting* Vol. 34, 375-388.

Tsui, J.S.L., Jaggi, B., Gul, F.A. (2001), CEO domination, growth opportunities, and their impact on audit fees, *Journal of Accounting, Auditing and Finance* Vol. 16, 189-208.

Vafeas, N. (1999), Board meeting frequency and firm performance, *Journal of Financial Economics* Vol. 53, 113-142.

van Praag, B., Rees, B. (2002), A market impact study of accounting restatements, *Working paper*, University of Amsterdam.

Warfield, T., Wild, J., Wild, K. (1995), Managerial ownership, accounting choices, and informativeness of earnings, *Journal of Accounting and Economics* Vol. 20, 61-91.

Warga, A., Welch, I. (1993), Bondholder losses in leveraged buyouts, *Review of Financial Studies* Vol. 6, 959-982.

Weisbach, M.S. (1988), Outside directors and CEO turnover, *Journal of Financial Economics* Vol. 20, 431-460.

Wilson, W. (2006), The information content of earnings following restatements, *Working paper*, Southern Methodist University.

Wright, A., Ashton, R.H. (1989), Identifying audit adjustments with attention-directing procedures, *The Accounting Review* Vol. 64, 710-728.

Wu, M. (2002), Earnings restatements: a capital market examination, *Working paper*, New York University.

Yates Rauterkus, S., Song, K. (2005), Auditor's reputation and equity offerings : the case of Arthur Andersen, *Financial Management* Vol. 34.

Yermack, D. (1996), Higher valuation of companies with a small board of directors, *Journal of Financial Economics* Vol. 40, 185-212.

Yu, F. (2005), Accounting transparency and the term structure of credit spreads, *CFA Digest* Vol. 35, 18-19.

Zaima, J.K., McCarthy, J. (1988), The impact of bond rating changes on common stocks and bonds: test of the wealth redistribution hypothesis, *The Financial Review* Vol. 23, 483-498.

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